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# ASSESSMENT OF HIV/AIDS SURVEILLANCE IN THE EUROPE AND EURASIA REGION

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The authors' views expressed in this publication do not necessarily reflect the views of the United States Agency for International Development or the United States Government.



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## EXECUTIVE SUMMARY

HIV/AIDS is spreading exponentially in the Europe and Eurasia (E&E) region. To launch an effective response, health experts need good-quality surveillance data on the nature and magnitude of the epidemic, its principal modes of transmission, and the size and types of the most at-risk populations. Unfortunately, as asserted consistently by HIV/AIDS experts, E&E countries lack reliable data on the true incidence and prevalence of HIV in the region and on the size, nature, and location of those infected and affected. This information gap impedes the design and management of effective intervention programs to combat and contain the disease—and may also lull national leaders and policymakers into a false sense of security about the risk of HIV/AIDS in their countries. This overall lack of data has also become an important issue for E&E countries currently establishing HIV/AIDS monitoring, evaluation, and reporting systems as beneficiaries of Global Fund to Fight AIDS, Tuberculosis and Malaria (GFATM or Global Fund) grants.

A simple yet comprehensive and sensitive HIV/AIDS surveillance system can help generate this type of information and is thus an effective tool to help health professionals, national and international governments/agencies, and donors focus an HIV/AIDS response where it is most needed. In countries with low-level or concentrated epidemics, such well-focused efforts would focus on vulnerable people and stigmatized and marginalized populations. By generating reliable data, surveillance systems can help provide the framework for strengthening commitment, mobilizing communities, and allocating resources for efficient, effective, and evidence-informed HIV/AIDS responses. Behavioral surveillance in particular can help strengthen program planning and evaluation by increasing understanding of the sexual behaviors and practices driving the epidemic and allowing for evidence-based assessment of trends over time.

The information generated by HIV/AIDS surveillance is essential at both the political and the technical level. At the political level, it helps enlighten policymakers about the spread of HIV/AIDS in their country and thus mobilizes commitment to fight the epidemic. It also allows for evidence-based policy decisions, providing specific data on prevalence, modes of transmission, and the most vulnerable populations. At the technical level, surveillance output helps clarify how HIV is spreading within a country, if the response is effective and appropriate, and how interventions should be designed. As recommended by the Joint United Nations Programme on HIV/AIDS (UNAIDS) *Three Ones* strategy (one national plan, one coordinating body, one monitoring and evaluation system), all surveillance systems should be incorporated into national M&E systems as an essential component of HIV/AIDS planning and monitoring programs (such as those funded by the Global Fund). In low-prevalence countries and those with concentrated HIV/AIDS epidemics, the development of modern surveillance systems to collect biological and behavioral data among the most vulnerable populations (including injecting drug users, sex workers, men who have sex with men, and prisoners) should be a top priority. Efforts to divert resources from surveillance activities focused on these most vulnerable subpopulations (i.e., toward surveillance activities among less vulnerable populations) should be resisted.

Despite the urgent need for baseline data in many E&E countries—particularly biological and behavioral data on most vulnerable populations—the *hit and run* approach (one-time studies with no follow-up) should be avoided. One-time studies often provide invaluable information, but they must be designed to lay the foundation for future, sustainable surveillance (based on standard principles of second-generation HIV surveillance systems) and to focus resources on vulnerable populations.

In most countries in the region, development of this type of surveillance will most likely require international technical assistance. Such assistance should focus on:

- helping decision-makers design a needs-based surveillance system
- ensuring that testing is voluntary, confidential, and supported by counseling
- ensuring that quality assurance and control principles are in place for testing and counseling
- identifying obstacles (e.g., testing requirements, financial incentives)
- reforming policies and attempting to change mindsets
- improving interpretation of case-based data

Through its experience in Central Asia, the Centers for Disease Prevention and Control (CDC) has developed an effective approach in providing technical assistance to develop HIV/AIDS surveillance systems in the E&E region. Key strengths of CDC's method include a focus on building national government capacity and embedding new surveillance systems within existing national structures (e.g., the *prikaz* system; see p. xiv). CDC's efforts to integrate surveillance system design and planning with the national system help to ensure government *ownership* of surveillance system output and thus increase the likelihood that government agencies will make good use of the data. Expanding on CDC's integration of surveillance systems with government structures, future HIV/AIDS surveillance activities should be designed to include all entities participating in the fight against HIV/AIDS within a country—including those from civil society, such as nongovernmental organizations (NGOs).

Generating accurate estimates of the size of vulnerable populations is a key element of effective surveillance in concentrated epidemics. While the selection of specific methodology will depend on the conditions within each individual country, surveillance systems should make maximal use of existing data and, in most cases (based on lessons learned in concentrated epidemics in other countries), should also use multiplier methods.

Effective biological surveillance requires reliable HIV testing. Therefore, each country should adopt clear algorithms for HIV testing to address different aspects of data collection (e.g., blood safety, surveillance, and diagnosis). These methods should be largely based on the use of ELISAs (enzyme-linked immunosorbent assays) and rapid tests,<sup>1</sup> as recommended by the World Health Organization (WHO) and UNAIDS. Each country should ensure its laboratory system has sufficient capacity (including internal and external quality control systems) to conduct effective HIV testing. This may require external technical assistance for staff training, development of quality assurance and control systems, strengthening of infrastructure, supply of appropriate test kits, and support of methodology, as well as human resource development and transport.

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<sup>1</sup> A rapid HIV test produces results in about 30 minutes, does not require a return visit from the client, is single-use, and does not require laboratory facilities or highly trained staff, and is therefore particularly suitable for use in resource-limited countries. [Available at <http://www.avert.org/hivtesting.htm>]

A main requisite for an effective surveillance system is appropriate analysis, use, and dissemination of the data. External technical assistance, therefore, may also focus on:

- building critical analytical skills at the national and the local level
- involving a range of people in the interpretation of surveillance results (e.g., epidemiologists, social scientists, community members, and NGOs)
- identifying those who will use the information and how it can best be shared
- emphasizing the importance of obtaining local feedback and using alternatives to written reports
- ensuring the use of current data to redesign interventions
- holding regional meetings to generate documentation (e.g., those held in Tashkent in 2003 and in Astana in 2004)
- cataloging all surveillance activities

A national HIV/AIDS surveillance system should also coordinate and document all relevant surveys conducted within a country. A *catalog* of such surveys could be published every 6–12 months or maintained in *real time* through a website. In addition, surveillance systems should collect qualitative as well as quantitative data on the nature of the risk environment.

Recommendations follow for technical and financial support from USAID and other international organizations at three different levels of financial and time commitment.

***In settings where financial resources available are low (<\$250,000 per year) and USAID's time commitment is limited (perhaps less than 2 years):***

1. Support an initial assessment of HIV/AIDS surveillance activities in the country
2. Support one-time studies to collect priority, baseline data, i.e., HIV prevalence and behavioral data among vulnerable populations
3. Support one-time HIV/AIDS surveillance training activities, e.g. study tours
4. Support coordination and documentation of surveillance activities supported by different donors with the aim of identifying and filling gaps

***In settings where financial resources available are medium (\$250,000 to \$1 million per year) and USAID's time commitment is medium term (perhaps 2–5 years):***

1. Support all activities under “low” plus...
2. Where national capacity is limited, contract an international agency to provide ongoing technical support. Criteria for such an agency might include:
  - credible technical expertise in both biological and behavioral elements of surveillance
  - leadership and ability to work constructively with the government
  - presence in region/country
  - knowledge of region/country, including policies, decision-making structures and culture

- capacity to take on additional work
  - personal contacts
  - connections to international standards
3. Provide intensive support for national capacity development, including training, laboratory strengthening, and transport
  4. Support national policy development efforts, including reform of case reporting system, and institutionalization of sentinel surveillance systems and policies on medical confidentiality. Reform of the case reporting system should focus on:
    - ensuring testing is voluntary, confidential, and supported by counseling
    - ensuring that quality assurance and control principles are in place for testing and counseling
    - identifying barriers to change, e.g., testing requirements, financial incentives
    - reforming policies and attempting to change mindsets
    - improving interpretation of case-based data

*In settings where financial resources available are high (>\$1 million per year) and USAID's time commitment is long-term (perhaps >5 years):*

1. Support all activities under “medium” plus...
2. Consider support for cohort studies, surveillance for mother-to-child transmission, drug-resistance monitoring, monitoring of genotypes, modeling of incidence based on behavioral data, and/or behavioral surveillance of HIV-positive people

***Support to regional activities, e.g., by regional bureau***

1. Support regional initiatives, e.g., training offered by Andrija Stampar School of Public Health in Zagreb, Croatia, and regional surveillance activities, such as among mobile populations including sex workers
2. Use regional funds to support development of surveillance activities in a particular country as a pilot/model from which other countries could learn
3. Support development of a regional network to collect and share standardized information concerning the HIV/AIDS situation and response in the region

This report is accompanied by a “Field Guide” to be provided to USAID Missions in the E&E region to give them an overview of many of these points from a less technical perspective and in a user-friendly format.

## ACRONYMS, ABBREVIATIONS, AND GLOSSARY

AED	Academy for Educational Development
AIDS	acquired immunodeficiency syndrome
ASSPH	Andrija Stampar School of Public Health
BSS	behavioral surveillance surveys
CAR	Central Asian Republics
CCM	Country Coordinating Mechanism
CDC	Centers for Disease Control and Prevention
CIOM	Center for Study of Public Opinion (Almaty, Kazakhstan)
CPHA	Canadian Public Health Association
CSW	commercial sex worker
DBS	dry blood spot
detuned assay	research tool for measuring HIV incidence based on HIV antibody testing that can indicate whether or not a person has recently seroconverted
E&E	Europe and Eurasia
ELISA	enzyme-linked immunosorbent assay
Epi-Info	computer software developed by CDC for epidemiological studies
EPO/DIH	Epidemiology Program Office, Division of International Health (CDC)
EuroHIV	European Centre for the Epidemiological Monitoring of AIDS (Institut de Veille Sanitaire)
FHI	Family Health International
GALA	Gay and Lesbian Association
GDP	gross domestic product
GFATM	Global Fund to Fight AIDS, Tuberculosis and Malaria (Global Fund)
HIV	human immunodeficiency virus
IDUs	injecting drug users
LSHTM	London School of Hygiene and Tropical Medicine
M&E	monitoring and evaluation
MEASURE	Monitoring and Evaluation to Assess and Use Results
MOH	Ministry of Health

MSM	men who have sex with men
NGO	nongovernmental organization
NIDA	National Institute on Drug Abuse
PASA	participating agency services agreement
Peptoscreen	locally developed ELISA used for 95% of HIV tests at oblast level in Uzbekistan
PLACE	Priorities for Local AIDS Control Efforts
PLWHA	people living with HIV/AIDS
<i>prikaz</i>	Russian word for order or command; used to describe a government order in countries of the former Soviet Union
PSI	Population Services International
RDS	respondent-driven sampling
second-generation surveillance	surveillance tailored to pattern of HIV epidemic in a particular country to collect data from a wide range of sources, including HIV prevalence and behavioral data from most vulnerable populations.
sensitivity	the ability of the test to identify correctly those who have the disease
specificity	the ability of the test to identify correctly those who do not have the disease
STD	sexually transmitted disease
STI	sexually transmitted infection
surveillance plus	surveillance in which those tested are provided with their results, as well as access to other services, such as counseling and treatment for STIs
TA	technical assistance
UNAIDS	Joint United Nations Programme on HIV/AIDS
UNDP	United Nations Development Programme
UNGASS	United Nations General Assembly Special Session
UNODC	United Nations Office of Drugs and Crime
USAID	United States Agency for International Development
VCT	voluntary counseling and testing
WHO	World Health Organizations

## BACKGROUND

The Europe and Eurasia (E&E) region is experiencing a significant HIV/AIDS epidemic (UNAIDS/WHO, 2003b). Good-quality surveillance data on the nature and magnitude of the epidemic, principal modes of transmission, and the size and types of most vulnerable populations are essential for an effective response to HIV/AIDS. Unfortunately, in many countries in the region, such data are lacking. This impedes the design and management of effective programs and lulls national leaders and policymakers into a false sense of security about the spread of HIV/AIDS in their country. This overall lack of information is also detrimental to E&E countries receiving grants from the Global Fund to Fight AIDS, Tuberculosis and Malaria (GFATM or Global Fund) as they seek to set up the required project monitoring and evaluation (M&E) and reporting systems.

In most countries in the E&E region, the HIV epidemic is concentrated among vulnerable populations who have not been the focus of national surveillance systems, which have largely been based on passive case reporting (see p. 2). More proactive surveillance approaches are limited and, in some cases, waste valuable resources by testing populations at low risk.

## TERMS OF REFERENCE

USAID asked The Synergy Project to examine the issue of HIV/AIDS surveillance in the Europe and Eurasia region to provide guidance to its E&E Bureau and Missions as to how such work can best be supported in the future.

The first part of the work included a literature review and interviewing of key global informants in the field (Drew and Choudhri, 2004). Later, field visits were conducted in the Central Asian Republics of Kazakhstan, Kyrgyzstan, and Uzbekistan. These countries were selected because USAID had systematically invested in strengthening their HIV/AIDS surveillance over a number of years.

A detailed scope of work for this assignment is provided in Annex I.

## METHODS

The first element of the work was carried out from 20 September to 8 October 2004. Key informants were selected from a list provided in the scope of work document or identified during the initial interviews. Interviews were conducted mostly by conference call by both research team members. The literature review included sources identified by team members or suggested by interviewees. A complete bibliography and list of interviewees are provided in *Report of literature search and interviews with key informants* (Drew and Choudhri, 2004).

Field visits were conducted in three Central Asian Republics from 9 October to 2 November 2004 (see Annex 2). The interview schedule was developed locally, in consultation with USAID/Central Asia Regional Mission (USAID/CAR) and the U.S. Centers for Disease Control and Prevention Central Asia Regional Office (CDC/CAR), by the Academy for Educational Development (AED), a USAID contractor responsible for trip logistics. In some cases, additional interviews were added at the request of team members. For most interviews, research team members were accompanied by staff from the CDC/CAR. In most cases, interviews were carried out through an English-Russian interpreter. Interviews were conducted with both individuals and small groups. In some situations, interviews were supplemented by direct observation (e.g., via visits to AIDS centers and laboratories). Where possible, additional documents were identified and reviewed. The References section (see p. 41) presents a combined bibliography of documents identified in both parts of the assignment.

Every effort was made to conduct the assignment rigorously. However, there were some limitations to an assignment of this nature. For example, the allotted time frame for field visits was just over three weeks. Although every effort was made to do so, consulting all key stakeholders was not always possible because of their work or travel commitments. Based on interview feedback, the team did arrange to speak to some additional informants. The majority of those interviewed, however, were those recommended by CDC/CAR. It is possible that some surveillance work in the region was overlooked, particularly that done by nongovernmental organizations (NGOs) generating programmatic information of value to the surveillance system. Almost all interviews were conducted with a CDC staff member present. This was very helpful in allowing the team to gain information quickly and to cross-check facts. However, it may have affected the nature and outcome of the interviews. Although the research team was assisted by an extremely capable group of interpreters, the use of translators to conduct interviews does have certain limitations. In addition, the allotted research time frame did not allow for translation of all Russian-language documents identified by the team.

## **INTRODUCTION**

The following section provides findings from the field-based portion of the assessment. The CDC/CAR office was established with USAID support in 1994. The initial focus on hepatitis and an improved public health response evolved during 2002 to encompass a program to address the growing threat of HIV/AIDS epidemics in Central Asia. USAID/CAR provides funding to CDC through a Participating Agency Services Agreement (PASA). The expanded PASA developed in 2002 included activities to establish the principle of sentinel surveillance in the region, to develop related policies, and to work toward establishment of 11 surveillance sites. These activities will be continued and expanded in the 2004–06 extension to the PASA.

## **HIV/AIDS SURVEILLANCE IN CENTRAL ASIA**

Kazakhstan is the largest and most northerly of the Central Asian Republics. It has a population of 14.8 million, of whom 32% are estimated to live below the poverty line. GDP per capita in 2001 was \$1,506 (USAID, 2004b). Kyrgyzstan is situated to the south of Kazakhstan and has a population of 5 million; in 2001, 48% of the population was below the poverty line, with a per capita GDP of \$308 (USAID, 2004c). Uzbekistan is west of Kyrgyzstan and has a population of 25 million. In 2001, 29% of the population in that country was below the poverty line, with a per capita GDP of \$299 (USAID, 2004d).

Although relatively few people are registered with HIV/AIDS in Central Asia, it is thought that the figures significantly underestimate the number of people living with HIV/AIDS (PLWHA) in the region. For example, there appears to be a concentrated epidemic among injecting drug users (IDUs) in the region, along with well-documented local epidemics in particular towns and cities (USAID, 2003; Adams, 2003; Favorov, 2003; Government of Kyrgyz Republic, 2002; Bashmakova et al., 2003; Godinho et al., 2003).

## **CASE REPORTING**

Similar to other countries in Eastern Europe and the former Soviet Union, the Central Asian Republics rely heavily on HIV/AIDS case reporting for surveillance purposes [e.g., Albania (Rjepaj, 2004), Estonia (Trummal, 2004), Vojvodina (Duric, 2004), Montenegro (Mugoša, 2004), and Turkey (Altan, 2004)]. Previously, they followed an approach referred to as *total mass population screening*. This involved mandatory testing of large numbers of people from different categories who came into contact with health and other government agencies.



There are significant weaknesses in this approach. First, it provides very little information on populations most vulnerable to the disease. All information is self-reported and thus may be unreliable, particularly regarding transmission modes such as injecting drugs, selling sex, and men having sex with men (MSM), activities that are considered socially unacceptable and are therefore stigmatized. In addition, because of the long period between being infected with HIV and developing symptoms of AIDS related illness, AIDS case reporting provides data that are 5–10 years out-of-date, and HIV case reporting may reflect an individual's testing patterns, testing policies, and the availability of tests rather than the HIV transmission itself. In many countries in the region, data are derived from large-scale, mandatory testing (UNDP, 2004) that may be discriminatory (Vujnovic, 2004) and stigmatizing. People may try to avoid the testing system, for example, through private health facilities. It also appears that many doctors within the public health system do not report fully (CPHA, 2004a). Based on all these factors, in most situations, the number of reported cases is less than the actual number of people living with HIV/AIDS in the E&E region.

All three countries visited report that they have replaced their former surveillance system with one that focuses on vulnerable populations and is based on voluntary, confidential, anonymous testing supported by pre- and post-test counseling. However, the degree to which this new policy has actually been implemented is unclear.

The biggest changes have occurred in Kyrgyzstan, where it is reported that the number of people tested dropped from 1 million per year to around 130,000. Surveillance in Uzbekistan appears to have changed the least. Data on the number of HIV tests carried out there are not available because the information is considered *sensitive*. Although official reports indicate the number of those tested is declining, it appears that in practice a large number of mandatory tests are still being carried out on various people, including prisoners; people traveling abroad and those getting married, or having surgery; and food handlers.

Before 2002, Kazakhstan carried out about 1 million HIV tests per year. About 800,000 tests per year are still being conducted, and reports indicate ongoing mandatory testing within some settings (e.g., among prisoners and the military). There is still obligatory testing of blood and organ donors and of individuals who refuse testing, if ordered by a court because of their medical conditions. It is unclear, however, if this has been enforced by the court system. There are also reports of some people needing HIV-negative certificates for certain activities, such as foreign travel or certain forms of employment; and in many medical settings, testing for HIV and other diseases may be considered routine. Officially, doctors are supposed to provide pre-test counseling and give a person the option of having the test or not. In practice, it appears that people tend to follow whatever the doctor recommends.

Despite these issues, the case reporting system in Central Asia has provided important information about HIV/AIDS in the region, including identification of:

- onset of concentrated epidemic by a rapid rise in the number of reported cases [e.g., Kazakhstan in 1997 (Republican AIDS Center, 2004); Kyrgyzstan in 2001; and Uzbekistan in 2003]
- the predominant transmission mode (i.e., injecting drug use)
- localized outbreaks (e.g., Temirtau in Kazakhstan, Osh in Kyrgyzstan, and Yangiyul in Uzbekistan)

One report asserts the system could be improved by integrating HIV and sexually transmitted infection (STI) surveillance, standardizing reports, and reducing the number of reportable infections (CPHA, 2004a).

In summary, HIV/AIDS case reporting can be an important tool for planning prevention, care, and treatment programs, particularly when reporting data are combined with data from other sources (e.g., ongoing, one-time biologic and behavioral studies among vulnerable groups). Case-based data can be used as an *early warning system* for the epidemic, helping to flag onset of an outbreak. These data are also particularly useful for advocacy purposes. Therefore, case reporting data should continue to be used as part of an overall surveillance system. However, results should be interpreted with caution, bearing in mind the possible caveats, particularly the likelihood of underreporting.

## HIV TESTING

Effective biological surveillance requires reliable HIV antibody testing. In this area all three Central Asian countries are essentially using the same system, which requires two ELISAs (enzyme-linked immunosorbent assays) and one Western Blot to confirm a positive HIV test. Initial ELISA tests are available in oblast<sup>2</sup>-level AIDS centers. In Kazakhstan, the centers are using Russian-made ELISAs. In Uzbekistan, they mainly use locally manufactured kits. Second ELISA tests are carried out at either the oblast or the national level. In all three countries, the Western Blot test is only available at the national level. Methodological issues relating to HIV testing are discussed in more detail on p. 19.

Three key issues that can inhibit reliable HIV antibody testing were identified:

1. *Nonavailability of test kits.* This was identified as an issue, particularly in Uzbekistan. Officially, there have only been shortages of ELISA kits at the oblast level. Unofficially, however, it is acknowledged that there have also been shortages at the national level (insufficient Western Blot test kits).
2. *Poor quality of ELISA tests.* In Uzbekistan, the National Reference Laboratory monitors the quality of local ELISA tests. Prior to 2002, it found that the sensitivity of one test, Peptoscreen (see p. xiv), was only 30–75% (National Reference Laboratory, Uzbekistan, 2003). As a result of these findings, production of the test was suspended and only restarted once sensitivity was assured to be >95%.
3. *Poor quality of laboratories.* In Uzbekistan, the National Reference Laboratory reviewed the work of 33 national laboratories. Using tests that showed sensitivity >95% in the National Reference Laboratory, the national laboratories were only able to produce a mean sensitivity of 79%. Two of the laboratories produced a sensitivity of 0%. Two main issues were identified from this review: the poor state of equipment and nonobservance of storage and transport conditions (National Reference Laboratory, Uzbekistan, 2003). [The laboratory at the Republican AIDS Center in Uzbekistan is working with a Cairo-based U.S. Naval Research group that is reviewing the use of saliva tests (Orasure) for detecting HIV antibodies and for genotyping.]

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<sup>2</sup> Large-scale administrative and territorial unit established taking into account economic peculiarities of a given region. Kyrgyzstan's territory, e.g., is subdivided into seven oblasts: Chui, Issyk-Kul, Talas, Jalal-Abad, Osh, Batken, and Naryn. Each oblast includes rayons and towns of oblast subordination. [Available at: <http://www.forest.kg/ForestrySector/glossary.htm>]

## SENTINEL SURVEILLANCE

In addition to the existing routine surveillance based on case reporting, each of the three countries visited in the region has started to introduce a system of sentinel surveillance with technical assistance provided by CDC with financing from USAID. This was considered necessary because, in 2001, it was reported that “HIV, STD and behavioral data on vulnerable populations [in the region] are inadequate, limiting program design and information for advocacy” (Dalabetta and Gavrilin, 2001).

Key features of CDC’s approach in all three countries include:

- official authorization of the system through the appropriate *prikaz*
- focus on building a long-term, sustainable system to be implemented by AIDS centers
- collection of linked biological and behavioral data among six key groups—IDUs, sex workers, MSM, prisoners, people with STIs, and pregnant women
- strong focus on building laboratory capacity
- use of *surveillance plus* approach (see p. xiv), in which study results and access to other services (e.g., counseling and STI treatment) are made available to participants

The first efforts to develop sentinel surveillance in **Kazakhstan** were supported by UNAIDS in 2002 (Kazakhstan Ministry of Health, 2002b). This work was subcontracted to the Center for Study of Public Opinion (CIOM) in Almaty, which conducted unlinked biological and behavioral studies among four vulnerable groups—sex workers, IDUs, MSM, and prisoners. Reports were produced on the outcome of the studies, including those on behavior in IDUs (UNAIDS, 2002a). Since 2003, ongoing research for the surveillance has been supported by CDC, and two new focus populations were added to the study: people with STIs and pregnant women. Activities were focused on four sentinel sites—Karaganda, Pavlodar, Ural’sk, and Shymkent. In 2004, the Kazakhstan’s Ministry of Health (MOH) increased the number of surveillance sites to 10 (adding Akmola, East Kazakhstan, Kustanai, North Kazakhstan, Almaty, and Astana). The MOH plans to extend the program to all oblasts in 2005. (six remain; there are 14 oblasts and two major cities in Kazakhstan.) In addition to the 10 primary sites, some oblasts have sentinel sub-sites (e.g., in Temirtau). The expansion of sentinel sites by the MOH has proceeded faster than envisaged by CDC.

In **Kyrgyzstan**, CDC supported sentinel surveillance in the cities of Osh and Bishkek in 2004. In Osh, surveys were done among sex workers, IDUs, pregnant women, and STI patients. Reports indicate surveillance in Osh was carried out among 500 pregnant women in 2003. In Bishkek, the work was done among three subpopulations—IDUs, sex workers, and prisoners. Work among pregnant women, MSM, and people with STIs is scheduled to be completed by the end of 2004.

CDC started supporting sentinel surveillance in **Uzbekistan** in 2004 among six subpopulations in Tashkent city and oblast. Annex 3 gives details of progress to date.<sup>3</sup>

This work has produced important data concerning specific vulnerable populations. For example, in Kazakhstan, sex workers have been identified as a potentially important bridging population between IDUs and others (Zhussupov et al., 2004b). Sentinel surveillance among prisoners at four

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<sup>3</sup> It should be noted that, although the country was not visited by the authors, the foundation has also been laid by CDC for surveillance in Tajikistan, and it is also covered by the regional office, with initial training and studies concluded during 2004 among IDUs in Dushanbe and Khojand. Turkmenistan, the fifth country of the Central Asia region, continues to resist efforts to build a surveillance system, although CDC has procured laboratories for blood screening to be carried out at every *velayat* [oblast level] as part of HIV/AIDS prevention.

sites revealed relatively low rates of HIV infection (0–1%), but high levels of infection with hepatitis C (29.1–39.6%), which seem to support the finding that an estimated 50% of prisoners in Kazakhstan inject drugs. MSM appear to be the group for which there is least data. In 2003, CDC supported surveillance among 100 MSM in Karaganda that produced no positive diagnoses for HIV. Summarized prevalence data for sentinel surveillance for Kazakhstan in 2003 are presented in Annex 4 and for Kyrgyzstan for 2004 in Annex 5. Data for Uzbekistan are not yet available.

## ONE-TIME STUDIES

In addition to the ongoing sentinel surveillance supported by CDC, a number of other studies have been carried out in the region. However, there is no catalog or directory of these studies in any of the three countries. Consequently, it is not easy to determine exactly which studies have been done. Studies reported to the team are listed below (and summarized in Annex 9), but it is unlikely that this list is comprehensive.

CDC carried out two one-time studies directly—one in Kazakhstan (2002) and one in Uzbekistan (2004). In Kazakhstan, the work included a large comparative study of two cities in 2002, Karaganda and Temirtau (Bronzan et al., 2004a). Although the results have not yet been formally published, the study identified specific risk factors for HIV within the study area, namely:

- residence in Temirtau, as opposed to Karaganda (HIV prevalence among IDUs in Temirtau was around 25%)
- female gender
- long-term drug use
- use of *khanka* (raw opiate), as opposed to heroin
- unemployment and imprisonment
- sharing syringes/needles (Bronzan et al., 2004b)

In Uzbekistan, CDC carried out a similar study in Yangiyul and Chirchik to assess reports of an HIV outbreak among IDUs in Yangiyul. Preparations lasted about 18 months (including the time to establish an International Review Board, the *prikaz*, and training), and the study was conducted in 2004. IDUs (400) were surveyed in each of the cities using respondent-driven sampling. The initial population of IDUs was identified through narcologists and trust points.<sup>4</sup> Although official results are not yet available, preliminary results confirm much higher HIV prevalence in Yangiyul than in Chirchik.

In addition, in Kazakhstan there have been:

- a number of behavioral studies among MSM (Kamaliyev and Deryabina, 2004; Krukova et al., 2004; Schmidt, 2003)
- two Global Fund-supported surveys carried out by CIOM, studying sexual behavior of young people (CIOM, 2004a) and attitudes of the general public toward PLWHA and vulnerable people (CIOM, 2004b) (The program plans to carry out repeat, annual surveys

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<sup>4</sup>A trust point is a meeting room inside a medical facility, usually with a separate entry. While the location of the trust point may be advertised, the actual services are anonymous (i.e., visitors are not required to reveal personal data and any issues discussed with trust point counselors are kept confidential). The trust point offers free consultation, examination by specialists, needle exchange, and condoms for IDUs, MSMs, and commercial sex workers. [World Vision International. 2005. Available at [http://meero.worldvision.org/faq\\_categorie.php?categorieID=13#78](http://meero.worldvision.org/faq_categorie.php?categorieID=13#78)]

of this type, as well as a survey of program beneficiaries that will include program feedback and some behavior assessment.)

In Kyrgyzstan, there have been a very large number of these types of studies, including:

- WHO-supported surveillance among other subpopulations (e.g., MSM) and in other areas (such as Chui oblast). In 2003, there appears to have been a survey of 199 MSM in Chui oblast that found 0% HIV, 2.5% syphilis, and 10% hepatitis C. It also appears that separate surveys on condom use were conducted among MSM on an annual basis.
- UNAIDS-supported rapid assessment in Osh and Bishkek in 1998 that collected only behavioral data and included interviews of 50–60 people at each site. At the time, there were thought to be 4,500 drug users in Kyrgyzstan. As a result of the research, the estimate was revised to 50,000, of whom 68% were thought to be IDUs. The study also identified high-risk sexual and injecting behaviors.
- small surveys carried out once or twice a year by the Bishkek-based NGO Socium (Social Fund “Socium” of Support and Realization of Youth's Initiatives) from 1998 to 2002, with funding from the United Nations Development Programme (UNDP). Results indicated there were about 50,000 drug users in the country.
- countrywide survey of IDUs in 2002 supported by the UNODC (United Nations Office of Drugs and Crime) that included blood testing for HIV, hepatitis C, and syphilis. About 50–60 IDUs were interviewed in each region, and results indicated there were about 81,000 IDUs in the country.
- two research studies focused on hepatitis carried out by the National Reference Laboratory between 2002 and 2004. Study sample sizes were 106 and 263, respectively, and results of the first survey indicated 64% were infected with hepatitis C.
- biannual estimates of the number of sex workers in Bishkek carried out by the NGO Tais Plus
- study conducted by Population Services International (PSI) among students aged 17–22 in Kyrgyzstan and Tajikistan, with a sample of 1,600 from each country, carried out from May to September 2004. Analysis is still ongoing, but no HIV-positive diagnoses were detected.

In Uzbekistan, the following examples were identified:

- behavioral survey of IDUs who visited three Tashkent trust points conducted in 2002 by the Uzbek Republican AIDS Center, UNAIDS, and the Soros Foundation. The study identified some key demographic features of IDUs in the city, namely that they were mainly male, aged 20–45. Some common behavioral elements were also identified, such as repeated use of injecting materials and collective use of drugs. Group size averaged 8–12 and group members shared items used for preparing drugs.
- HIV/AIDS situational analysis supported by UNAIDS that included a literature review of the current situation.

- small-scale surveys focused on the needs of vulnerable populations conducted by a group of NGOs including the Uzbek Association on Reproductive Health, the Tashkent City Center of Mother and Child Health (focused on sex workers), Istikboli Avlod, and Ishonch Vahayot (a support group for PLWHA based at the AIDS Center).
- rapid assessment conducted in 2000 in four Uzbek cities supported by UNAIDS.
- study conducted from 2002 to 2003 among IDUs by the National Center of Control of Drug Use (supported by UNAIDS and UNODC).
- NGO-led survey in prisons (study results and leading NGO are unclear).
- large regional survey of high-risk youth carried out by PSI in four countries in June 2004. Results, which will be presented in a conference in Belfast in May 2005, indicated low self-reports of heroin use.
- World Vision International survey among 200 school youth in June/July 2004 (Sisina et al., 2004) that showed a large number of youth had tried drugs at least once.

Annex 6 presents behavioral data for IDUs in Kyrgyzstan based on some of the studies described above and lessons learned from the NGO Socium. Detailed information about vulnerable populations is also available from other NGOs. For example, Tais Plus distinguishes different groups of sex workers and has information about age, length of stay in sex work, place of origin, number of clients per week, etc. (Tais Plus, 2003). They estimate the number of sex workers in Bishkek twice per year.

One-time studies can be useful in initial assessments (e.g., as done in Temirtau and Yangiyul) and for supplementing information gathered from periodic surveys. In initial assessments, they can help provide the foundation for future, periodic cross-sectional surveys. Information from one-time studies can also be used to initiate prevention programs and surveillance activities in other parts of a country or to assess the effect of a particular program (e.g., work conducted by NGOs). As the list above shows, however, the coordination, cataloging, compiling, and comparing of data from such studies, which may be driven by donor demand and funding, can be immensely challenging.

## **PROGRAM DESIGN, MONITORING, AND EVALUATION**

In addition to specific surveillance, studies have been carried out that are primarily focused on various aspects of programming (e.g., program design), but that also yield behavioral information. The most notable of these is the use of the Priorities for Local AIDS Control Efforts (PLACE) methodology (MEASURE Evaluation, Carolina Population Center, University of North Carolina) in

Almaty, Karaganda, Osh, and Tashkent. In Kazakhstan, this work was carried out by CIOM, who also coordinated the work in other countries and provided training for other agencies. CIOM was involved in design of questionnaires, data analysis, and input into the final reports (Zhussupov et al., 2004a; Abdullaev, 2003; Abdullaev et al., 2004; Zhussupov, 2003a; Zhussupov 2003b; Elibezova, 2003).

PLACE is essentially a methodology used to plan and design programs. It also produces behavioral data. It was reported that in the region it had been mainly used to design social marketing programs currently being implemented by PSI. Analysis of its perceived strengths and weaknesses are presented in Table I.

## ESTIMATION OF POPULATION SIZES

Although some work has been done on estimating the size of vulnerable populations in the region (see Table 3), this is not yet a systematic part of the surveillance system.

In Kazakhstan, estimates have been made by CDC (Tate et al., 2004) and others. For example, a rapid situation assessment was carried out with UNAIDS experts from Belarus in different regions and cities from 1998 to 2003. As a result, the number of IDUs in the country is estimated at 150,000 to 250,000, with approximately 20,000 sex workers. Kazakhstan has 90 prisons with about 60,000 prisoners and about 10,000 on remand (awaiting trial at any given time). There appear to be no data on the number of MSM in the country.

In Kyrgyzstan, the number of IDUs is estimated at 50,000 to 81,000. The number of IDUs in Bishkek is estimated at about 20,000, and the number of sex workers at about 1,600 to 2,500. In Osh, an NGO working with sex workers (Padroga) knows of 750 members of that population. The NGO Oasis estimates there are about 6,000 MSM in Bishkek and around 1,500 in Osh.

There is very little information on the number of members of vulnerable populations in Uzbekistan. Although it was reported that MOH figures indicate 60% of all IDUs have been officially registered, this seems unlikely. In Tashkent, it is estimated that there are about 1,000 to 2,000 sex workers and about 10,000 to 20,000 IDUs.<sup>5</sup>

## ASSESSMENT OF RISK ENVIRONMENT

Assessment of environmental factors does not appear to be a systematic feature of the surveillance system in the region. However, a rich array of anecdotes on the topic has emerged in the course of conducting surveillance activities.

For example, there is some evidence that the spread of HIV among IDUs in Kazakhstan has slowed compared to previous years, particularly in Temirtau. Although this may be based in part on the introduction of effective interventions, other factors may also be at play. Surveillance activities documented that the use of raw opiate was significantly more likely to be associated with HIV infection than heroin use. This was attributed to the different injecting practices for the two drugs. In recent times, more IDUs have been switching to heroin from the raw opiate, most likely because of a drop in heroin prices caused by an increased supply of the drug from Afghanistan. This may provide evidence of how the issues of drug demand and supply (Bozgunchiev, 2003) affect HIV transmission. It may also mean that a recent rise in heroin prices should be cause for concern.

There may also be some interesting environmental factors that explain why HIV prevalence in Temirtau is much higher than in Karaganda, despite their close geographical proximity. Explanations advanced to the research team during their visit included:

- lack of contact between IDUs in the two cities, and the fact that drugs are supplied to each city by rival criminal groups (i.e., it would not be possible for an IDU from one city to buy drugs from the other city)

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<sup>5</sup> USAID/CAR has included two additional activities related to surveillance in its 2004–06 agreement with CDC. One of these is work on methods to determine the estimation of size of vulnerable populations.

- the fact that Temirtau is less affluent than Karaganda, and raw opiate is cheaper than heroin (i.e., more IDUs use raw opiate in Temirtau than in Karaganda), and surveillance studies show a significant association between use of raw opiate and HIV infection. (One hypothesis is increased risk due to the common practice of using blood in the preparation of the raw opiate, and the practice of using a shared supply of the product prepared in this manner.)
- the physical layout of Karaganda, a sprawling city with residential sections separated by areas where construction is banned because of underlying mine workings (resulting in IDU networks that are reportedly smaller and more isolated from each other than those in Temirtau)

Annex 9 provides a tabular summary of the range of surveillance activities reported in the three Central Asian countries visited.

## KEY ISSUES IDENTIFIED THROUGH FIELD VISITS

### PURPOSE OF SURVEILLANCE

HIV/AIDS surveillance should never be carried out as an end in itself. Rather, it should be used as a means to achieve a particular end, the most significant of which is ensuring that national response to the epidemic is well-focused, i.e., on the most vulnerable populations in concentrated epidemics.

HIV/AIDS surveillance is carried out for a number of specific reasons (Dalabetta and Gavrilin, 2001): (1) to allow for assessment of the status of HIV/AIDS within a country and to clarify the factors driving the epidemic (UNDP, 2004) (this type of information can be essential in mobilizing decision-makers to tackle the epidemic and in ensuring policies are based on clear evidence); and (2) to facilitate the design, assessment, and adjustment of the response to the epidemic (UNAIDS/WHO, 2004b; Dalabetta and Gavrilin, 2001). Programs designed with the use of surveillance output (e.g., behavioral data) are more likely to be appropriate in both focus and scale than those designed without such data. For example, many programs, including the one funded by the Global Fund in Kazakhstan, were designed using surveillance data to try to understand the effect of the program's activities (Kazakhstan CCM, 2002). Surveillance data are also vital for forming accurate estimates of the number of people living with HIV/AIDS in a country (UNAIDS, 2002; Ward et al., 2004). This is useful for many purposes, including determining the optimal size for treatment and mitigation programs. For example, using only surveillance, it was estimated that the actual number of PLWHA in Kazakhstan is about double the registered number.

### BENEFITS OF SURVEILLANCE

The main objective of the use of surveillance systems is to achieve better-designed, more relevant programs with implementation based on knowledge gained from the collected data. There may be additional benefits, however, including:

- greater collaboration among the various agencies participating in the response to HIV/AIDS within a country, including government agencies and NGOs (UNAIDS/WHO, 2004b)
- provision of additional services, e.g., via the *surveillance plus* approach, in the absence of accessible, free, and confidential voluntary counseling and testing (VCT) for vulnerable populations
- more reliable HIV test results through the availability of high-quality test kits



- greater focus on vulnerable people (such as attempts to involve those who are at risk in decision-making processes)
- increased trust of and demand for HIV/AIDS-related health services (e.g., use of World Vision's trust points by IDUs in Tashkent; see footnote 4 on p. 6)

## **FOCUS ON VULNERABLE POPULATIONS**

Research among vulnerable populations should be the cornerstone of the surveillance system in most countries, especially those with concentrated epidemics (Schwartländer et al., 2001). In general, the sentinel surveillance system supported by CDC in Central Asia is focused on vulnerable subpopulations, particularly IDUs, sex workers, MSM, and prisoners. However, it also includes STI patients and pregnant women, who are often considered as proxies for the general adult population.

Many of those interviewed expressed a desire that surveillance scope be expanded to include other vulnerable people, such as young people in general, students, immediate family and friends of IDUs, military recruits, police officers, tuberculosis (TB) patients, and patients with hepatitis. There is likely to be a tension between accommodating these requests and ensuring that surveillance activities retain a focus on the most vulnerable populations.

Although there are many reasons why it is useful to know the extent to which members of the last two populations—those infected with TB and hepatitis—are infected with HIV, and vice versa, including them in HIV/AIDS surveillance would most likely not be appropriate. It is well documented that TB is a common opportunistic infection in people living with HIV/AIDS and may be a sign of disease progression; the presence of hepatitis C in a person with HIV/AIDS may give some indication of the mode of transmission. Co-infection may have treatment implications, and screening people with TB and hepatitis for HIV may increase case detection. However, at the country level, the decision to include people with TB or hepatitis as a vulnerable population within a second-generation surveillance system needs to be weighed carefully in terms of costs and benefits.

Second-generation surveillance entails the study of populations at higher risk of HIV. It also includes the study of behavior. Ongoing, cross-sectional surveys of behavior and regular testing for HIV for all reported cases of TB may not be an effective use of a country's limited resources. Such surveys, if carried out on people with hepatitis (especially hepatitis C), are not likely to yield information as valuable as that generated by similar studies among IDUs, for example.

Two key issues emerged on this topic as a result of the field visits. First, to what extent do young people constitute a vulnerable population simply by virtue of their age? On the one hand, many people interviewed felt that youth constituted the most vulnerable people in the region and should therefore be the focus of intervention efforts. Others felt that only a subset of young people is truly vulnerable and that general surveys of and activities for young people result in the diversion of resources to low-risk youth and the marginalization of those most at risk. Second, to what extent do vulnerable populations overlap, for example, sex workers and injecting drug users? The NGO Tais Plus reported overlap was rare, while other respondents felt it was common. The PLACE findings indicated that the overlap is, in fact, considerable.

## TECHNICAL EXPERTISE

Given the nature of HIV/AIDS surveillance, a significant amount of technical expertise is required to plan and implement surveillance. In all three countries visited, elements of this expertise were provided from international agencies, including CDC and UNAIDS. CDC's approach—working alongside government agencies in a supportive way, based on mutual trust—enabled it to carry out surveillance that may potentially be sustainable through local leadership, with the CDC's role limited to participant in, rather than direct implementer of, surveillance activities. A key aim of this approach is to allow government entities to own the data generated in the study.

Prior to the trip, the team interviewed a number of international key informants. They identified a number of countries that they felt had made significant progress in improving their HIV/AIDS surveillance systems. These included Belarus, Kazakhstan, Slovenia, and Ukraine, in particular. In Ukraine, behavioral and biological studies were carried out in 2000 (Scherbinskaya et al., 2000) and 2002 (Yaremenko et al., 2003) among different groups, including IDUs (prevalence of 17.8–64%, 2000; 16–58%, 2002), sex workers (13.2%, 2000; 6–31%, 2002), prisoners (4–26%, 2000), antenatal women (0.4%, 2000) and Ministry of Interior employees (0.73%, 2000). A key difference between the work in Ukraine and the work in Central Asia has been data ownership. In Ukraine, the extent to which the surveillance data have been accepted within the country is unclear. For example, HIV prevalence in IDUs was reported to the United Nations General Assembly Special Session (UNGASS) to address the HIV/AIDS pandemic as only 8.6% (UNAIDS, 2003).

In many countries of the E&E region, there is limited technical capacity in the area of HIV/AIDS surveillance. Therefore, international technical assistance may be required on an ongoing basis for the following activities:

- technical leadership, including methodological advice (e.g., design of questionnaires and sampling methods)
- coordination with other agencies providing similar support and those carrying out other surveillance activities (this was identified as a key issue, particularly by NGOs in Kyrgyzstan<sup>6</sup>)
- validation and quality control
- capacity development activities, including training and infrastructure development
- data analysis, use, and dissemination (although these activities would ideally fall within the realm of national government agencies, some may lack the technical expertise to generate information and use it effectively)
- response implementation and, when the international technical agency has the capacity, response or program development
- monitoring and evaluation of surveillance—including a preliminary assessment of surveillance activities and capacity [e.g., CDC's assessment of infectious diseases surveillance in 1995 (CDC, 1995)]

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<sup>6</sup> For example, one respondent said, "People are always asking us to carry out this kind of work. It would be better if we could have the money and do it ourselves."

Possible criteria for selection of an international technical agency, where required, might include:

- credible technical expertise in both biological and behavioral elements of surveillance
- leadership and ability to work constructively with government
- presence in region/country
- knowledge of country/region, including policies, decision-making structures and culture
- capacity to take on additional work
- personal contacts
- connections to international standards

USAID Missions need to have some in-house technical knowledge to design relevant technical assistance programs. In most cases, this expertise would be readily available in the form of a staff member with health-related expertise. In Missions without health staff, the appropriate skills may need to be brought in either from other parts of USAID or through hiring consultants.

One issue that arose during the course of the research is whether or not such technical assistance was best provided on a regional or national basis. In the case of Central Asia, both CDC and USAID operate on a regional basis. However, for surveillance, CDC has operated through a main office in Almaty, Kazakhstan, and a sub-office in Tashkent, Uzbekistan. Support for surveillance activities in Kyrgyzstan has been provided by CDC/Almaty. Although these arrangements were somewhat dictated by resource limitations, USAID field staff had differing perspectives. The USAID representative in Bishkek felt it would have been better to have had someone from CDC based in Kyrgyzstan, which she felt would have allowed for improved communications, greater time availability, and more involvement in policy dialog. She acknowledged this would have had financial implications. On the other hand, the USAID representative in Tashkent reported that he liked the regional approach and felt that it allowed sufficient flexibility for national settings. He thought it was more cost-effective than country-specific technical assistance but felt that national offices of contractors should have more autonomy. CDC reported that it established a sub-office in Uzbekistan because the country has a large population and was a high priority for USAID; and in agreement with USAID, the country had the largest budget for surveillance.

## **ROLE OF NATIONAL GOVERNMENT AND NGOS**

A distinctive feature of CDC's approach has been its commitment to working with and through national government structures, particularly AIDS centers, and ensuring that surveillance work is institutionalized through the appropriate *prikaz*. Where NGOs have been involved, they have largely been used to provide access to vulnerable people—e.g., Oasis (Oasis, 2004) and the Gay and Lesbian Association (GALA) to MSM; Padroga and Tais Plus (Tais Plus, 2003) to sex workers; Parents Against Drugs, Socium, and World Vision to IDUs.

A number of NGOs expressed concern about this approach and that they would like to be more involved in surveillance activities. This was particularly the case in Kyrgyzstan, where NGOs are probably the most developed. Padroga in Osh reported they would like to do future surveillance independent of the AIDS Center because they felt the presence of AIDS Center staff discouraged

some vulnerable people from participating. Tais Plus in Bishkek felt AIDS Center staff were poorly equipped to conduct counseling, and that this could be done more effectively by their own professional staff. In general, the two key concerns about working with government on surveillance activities can be summarized as:

- perception of government employees (e.g., AIDS center staff) among vulnerable people, who may feel threatened
- lack of government staff skills, particularly in conducting behavioral interviews<sup>7</sup>

On the other hand, CDC was reluctant to involve NGOs further in Uzbekistan, mainly because of the limited geographical coverage of their programs, and their lack of medical specialists, short-term funding, and strong historic rivalry with AIDS centers.

One other way in which NGOs have been involved in sentinel surveillance activities is in training government staff to work with vulnerable people (e.g., work done by PSI in Tashkent). NGO representatives have been invited to and have participated in CDC's regional conferences to present and discuss surveillance results (in Tashkent in 2003 and in Astana in 2004).

It should be noted that many NGOs are informed on and interested in surveillance in part because of their involvement in the process by CDC. Part of CDC's approach to address gaps in governmental institutions' abilities to conduct the full range of tasks linked to surveillance has been to bring NGOs into the process. This has contributed to the growing recognition of NGOs in the region, which, although at different stages in different countries, points toward an increasing role for NGOs in the fight against HIV/AIDS.

## **DATA ANALYSIS, USE, AND DISSEMINATION**

There are many examples of data's being used positively to design and modify programs. For example, in Kazakhstan, the finding that 50% of prisoners inject drugs has led to piloting harm-reduction programs in two prisons (through non-U.S. funding), and the finding that police are major clients of sex workers in Kazakhstan has led to the introduction of a prevention program aimed at them. In Uzbekistan, PSI planning to start programs there was a direct result of the finding of very high HIV prevalence among IDUs in Yangiyul.

Although these surveillance activities were initiated relatively recently, there is already some evidence of an effort to make reporting more systematic. For example, in Kazakhstan, it is reported that results of sentinel surveillance are produced annually (Kazakhstan MOH, 2002a).

Data are being used at a number of levels (i.e., local, national, and regional). For example, data have been shared with health care departments, local authorities, and other ministries through roundtable meetings. Data have also been shared at national conferences and used to design

national programs (e.g., those submitted to the Global Fund). Two regional conferences were held—one in Tashkent in October 2003 and one in Astana in April 2004. These were useful for generating documentation of processes and findings, and for information exchange among professionals in the field.

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<sup>7</sup> For example, one social scientist interviewed said, "...expecting medical epidemiologists at AIDS centers to conduct behavioral surveys [was] the same as expecting [him] to provide treatment to patients."

Despite these positive outcomes, a few critical weaknesses were identified. These included:

- *Limited data feedback to NGOs and vulnerable people.* AIDS centers appear to prioritize upward reporting through MOH structures (e.g., to national level, oblast government, and professional colleagues). As a result, many NGOs interviewed were either completely unaware of surveillance findings or reported receiving information that was incomplete or extremely delayed (although NGOs were invited to and participated in CDC's regional conferences on the findings). Similar issues were reported by the staff of non-health government ministries (e.g., Ministry of Justice in Kyrgyzstan).
- *Weak analytic skills, in general, and a tendency to only attribute positive changes to the effects of programs, in particular.* For example, in Bishkek, it was reported that lower HIV prevalence there, compared to Osh, was attributed to more effective programs. In Osh, it was reported that case reporting/screening showed a drop in HIV prevalence in prisoners (from 4.2% in 2001 to 0.9% in 2003) and IDUs (from 6% in 2001 to 4.1% in 2003) and that this was evidence of effective programs. A reported dramatic decline in HIV prevalence in Temirtau was also attributed to effective programs without considering alternative explanations.<sup>8</sup>
- *Failure to identify the proper audiences, the information they need, and in what format.* In general, it appeared to be assumed that a report was needed to document findings. There appeared to be no evidence of seeking to identify specific audiences and their information needs.
- *Inordinate delays in releasing data and generating information.* For example, the report of the Karaganda/Temirtau study conducted in 2002 is still not available.<sup>9</sup> PSI in Bishkek report that they only recently received the 2002–03 PLACE map. Although this material could be of some interest, it is of little direct benefit for programming purposes because it is now so out-of-date. Reasons for these delays may include fear of release of data, historic political legacy, excessive focus on precision, organizational bureaucracies, and inadequate human/technical capacity to generate information. Higher priority was given to the release of data on the prevalence of HIV, hepatitis C, and STIs than to behavioral data.

## **CAPACITY DEVELOPMENT**

A key focus of CDC in the region has been in developing national capacity in three key areas: human capacity, laboratories, and transport.

### **Human Capacity**

Human capacity development has focused on training government specialists through various means, including workshops, study tours, peer professional training, on-the-job training, and use of adult learning techniques; in Kyrgyzstan, for example, training was held in Bishkek and Osh and covered completing questionnaires, counseling, and referral to AIDS centers. In Tashkent, hiring medical students as assistant epidemiologists helped boost human capacity.

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<sup>8</sup> Another new activity included in the 2004–06 PASA between USAID and CDC is data for decision-making, an effort to ensure that stakeholders and policymakers are able to analyze, digest, and use data produced through surveillance efforts.

<sup>9</sup> A five-page, preliminary, summary report was circulated to partners earlier.

### **Laboratories**

CDC has had a strong focus on improving the capacity of laboratories in the region (Kalashnikova et al., 2003; Kovtunen et al., 2003). This has been important because of evidence of poor-quality laboratory testing from various sources, including testing for hepatitis B in Almaty (Jumagulova et al., 2000) and HIV in Uzbekistan (National Reference Laboratory, Uzbekistan, 2003). Three key elements of building laboratory capacity have been identified—training, quality assurance, and technical support, with equipment supply and methodological guidance as important requisites. CDC has addressed all of these elements. With USAID funding, CDC procured 41 serology laboratories for the region. Guidelines produced by CDC in 2000 and 2001 serve as the basis for quality assurance efforts, while proficiency testing at the national level has been conducted regularly in the three countries (once or twice per year). Beginning in 2004, 20 laboratories have participated in international proficiency testing programs. These laboratories (six from Kazakhstan, three from Kyrgyzstan, and 10 from Uzbekistan, plus one from Turkmenistan) participate in the Model Performance Evaluation Program of CDC/Atlanta's Department of Laboratory Services. Six laboratories have participated in the proficiency testing program for HIV in dried blood spots in CDC/Atlanta. These steps reflect the international guidance that quality assurance systems should include internal systems at pre-analytical, analytical, and post-analytical stages, and external systems based on proficiency testing (UNAIDS/WHO, 2001).

### **Transport**

With USAID resources, CDC has provided vehicles for surveillance activities. These are reported to be very useful as bases for conducting surveillance activities.

## **METHODOLOGICAL ISSUES**

A number of key methodological issues emerged from the field visits. These are discussed in detail on p. 19.

## **ENVIRONMENTAL ISSUES**

The environment in Central Asia has a profound effect on the ability to carry out surveillance activities in the region. Particular elements of this include:

- *Restrictive policy environment.* Although this affects all three countries, it is perhaps least problematic in Kyrgyzstan, which has effected a number of positive policy reforms (e.g., prison policies). Both Kazakhstan and Uzbekistan have introduced needle-exchange programs in the community, but neither permits substitution therapy.
- *Negative attitudes toward PLWHA and members of vulnerable groups, particularly in relation to MSM.*
- *Excessive use of identifying information and weak controls for protecting confidentiality.* For example, in Osh, Padroga reported that the AIDS center asked them to trace the one HIV-positive sex worker identified through surveillance.
- *Segregation of HIV-positive prisoners.* This practice was the norm, in the past, and it is unclear whether or not it is still happening. For example, in Kazakhstan, it is reported that 440 PLWHA are still in segregated facilities, but that this is by their choice, and no new prisoners are being added to those facilities.

- *Mandatory HIV testing.* Although official policies in all three countries assert HIV testing is voluntary, it was widely reported that testing is effectively mandatory in many settings. For example, even in Kyrgyzstan, testing is routine for prisoners who use drugs, people with TB, and people with STIs. UNAIDS/WHO policy on HIV testing stresses it should be confidential, accompanied by counseling, and conducted only after informed consent has been given. Mandatory testing is only supported for blood and organ donation. Where mandatory testing is conducted, counseling should be provided for both HIV-positive and HIV-negative individuals, and people who test positive should be referred for medical and psychosocial services (UNAIDS/WHO, 2004c).
- *Weak culture of medical scientific ethics.* In the past, structures for ethical approval of research studies in the region have been either weak or poorly developed. CDC has been trying to help address this through registering institutional review boards.
- *Social norms, values, and culture.* These factors are affected by the attitudes of people in authority, religion, past morals, and a complex interplay between the prevalent culture and the westernization of subpopulations.
- *Changing environment for the work of NGOs* (e.g., in Uzbekistan, where the Soros Foundation recently failed to have its registration renewed).
- *Centralized decision-making framework.* The Soviet-style *prikaz* are still immensely important in the region. In Kazakhstan, CDC spent at least one year to ensure such a framework was in place. In Uzbekistan, USAID explained the best way to get an appropriate *prikaz* issued was to form an advisory group of appropriate decision-makers within the government structure and to lead the group toward the development of an appropriate *prikaz*. Although time-consuming, developing a *prikaz* builds local ownership and a support base and is therefore worthwhile in the long run.
- *Highly vertical, fragmented, health system.* The legacy of the Soviet Union is a strong focus on the medical model and minimal involvement of social agencies.
- *Potentially unstable political situation* (e.g., in Uzbekistan, bombings and police raids have disrupted CDC and NGO operations).

In summary, CDC's approach to supporting surveillance systems in countries of Central Asia does provide a useful model that could be applied in other countries of the region, particularly its strong emphasis on capacity development and national ownership of data. However, the approach would be strengthened by a greater focus on behavioral surveillance, greater involvement of NGOs, and use of and comparison with data from other sources.

The following section provides more detailed responses to specific points raised in the Terms of Reference.

## **SPECIFIC ISSUES FROM TERMS OF REFERENCE**

### **HIV/AIDS SURVEILLANCE APPROACHES**

#### **USAID/CAR**

In Central Asia, USAID has supported two main types of HIV/AIDS surveillance: the CDC approach and the MEASURE Evaluation approach. Table I presents an analysis of the respective strengths and weaknesses of the two approaches.

Table 1. Strengths and limitations of CDC and MEASURE surveillance approaches

	Strengths	Limitations
CDC	<ul style="list-style-type: none"> <li>• Strong focus on building national capacity (particularly in laboratory services)</li> <li>• Significant achievements in challenging political context</li> <li>• Supportive and nurturing relationship with national governments</li> <li>• Promotes government ownership and use of data</li> <li>• Focus on building sustainable surveillance systems</li> <li>• Strong focus on vulnerable populations</li> <li>• Linked bio-behavioral approach</li> <li>• Strong focus on measuring HIV prevalence</li> <li>• Linked HIV and STI surveillance</li> <li>• Very high technical and methodological standards</li> <li>• Use of <i>surveillance plus</i> approach (see p. xiv) to provide results, counseling, and STI treatment</li> <li>• Anecdotal use of data to influence programming</li> </ul>	<ul style="list-style-type: none"> <li>• Limited focus on/skills in behavioral surveillance</li> <li>• Limited role of NGOs</li> <li>• Lack of triangulation with data from other sources.</li> <li>• Sentinel surveillance viewed as a stand-alone function rather than one that generates epidemiological information as part of an overall system</li> <li>• Excessively academic approach</li> <li>• Limited data analysis capacity, especially behavioral data</li> <li>• Strategy for dissemination of data not fully developed</li> <li>• Unclear system for estimating population size</li> </ul>
MEASURE Evaluation/ PLACE	<ul style="list-style-type: none"> <li>• Generates maps useful for program planning and implementation</li> <li>• Methodology can be incorporated into surveillance system as initial assessment</li> <li>• May be particularly useful in large, complex cities with no initial data</li> <li>• Able to deal with overlapping vulnerable populations</li> <li>• Extensive set of reports</li> </ul>	<ul style="list-style-type: none"> <li>• Perceived by some users as more suited for generalized epidemic</li> <li>• Primarily a program planning tool</li> <li>• Quality of behavioral data is suspect</li> <li>• No biological element</li> <li>• Resource intensive</li> <li>• Very slow reporting</li> <li>• Findings not available to all implementers</li> <li>• Reports known internationally more than nationally</li> <li>• One-time intervention highly dependent on international support</li> <li>• Worked under a centralized system that failed to take into account local issues and needs</li> </ul>



CDC's approach to supporting surveillance systems in Central Asian countries provides a useful model that could be applied in other countries in the region (particularly the strong emphasis on capacity development and national ownership of data). The approach could be further strengthened, however, by a greater focus on behavioral surveillance, greater involvement of NGOs, and use of and comparison with data from other sources.

The PLACE methodology may be relevant in conducting an initial ethnographic assessment of particular vulnerable groups and the maps generated, in particular, may be useful for program planning. Elements of PLACE may be incorporated into regular biologic and behavioral surveillance. The approach could be strengthened by ensuring results are disseminated in a timely manner nationally.

## **METHODOLOGICAL ISSUES**

Understanding the methods used in HIV/AIDS surveillance is one of the major challenges faced by non-specialists involved in this field. This section provides an overview of methods used to access vulnerable populations for HIV/AIDS surveillance. Because this field is constantly changing and technical agencies tend to have different preferences in approaches, understanding the various issues associated with use of the different methods may be important for those supporting or commissioning surveillance activities. It should be noted that one of the key aims of surveillance is to produce *comparable* data. This may be difficult if technical agencies and methods are changed frequently.

Key questions to be asked while developing the surveillance system for a particular population are:

- Who do these subpopulations comprise and how will the study approach/gain access to them?
- How will the study obtain a representative sample?
- How many members of the subpopulation should the study recruit?
- How will they be recruited?

One of the main challenges in HIV/AIDS surveillance among vulnerable populations is *gaining access* to vulnerable people. Most vulnerable people are marginalized, stigmatized, and often fear arrest. This makes it difficult to gain access to these people, who are often hidden from view. The most commonly used access points are institutions such as health and treatment services and some parts of the criminal justice system. The main problem is that vulnerable people identified from these settings are unlikely to represent the subpopulation as a whole. This may be overcome to some extent by using multiple access points. Gaining access to the vulnerable people through institutions that do not respect the human rights of vulnerable people and/or are not trusted by them may not be effective. An alternative approach is to seek to identify community-based entry points using a mapping exercise. This may include ethnographic assessments such as PLACE and/or the use of focus group discussions to identify sites visited by these populations. Whatever approach is taken, building trust with NGOs and other agencies working with these populations and the vulnerable people themselves is crucial to achieving a surveillance system based on confidentiality, honesty, open lines of communications, and long-term relationships.

One of the key concepts in HIV/AIDS surveillance is that of *sampling*—selecting a number of people as representative of the population as a whole. A key question is then how many are needed for the sample. Optimal sample size in population-based surveys depends on:

- a reasonably close estimate of actual prevalence (if in doubt, use 50%)
- the maximum acceptable difference between estimated prevalence (based on the sample) and actual prevalence, known as *acceptable margin of error*)
- the required confidence level (usually 95%), which refers to the level of statistical significance, or probability, that differences between populations are less likely to be a chance occurrence
- the size of the population (although this is relatively unimportant)

Sample sizes can be calculated using formulas, tables, normograms, or computer programs such as Epi-Info (computer software developed by CDC for epidemiological studies). Sample size determination should consider the resources and time available. A sensitivity analysis—a series of sample size calculations based on different assumptions and requirements—may be useful in determining an acceptable sample size. However, a poorly selected sample, even if large, is likely to give biased results. For certain types of sampling (e.g., cluster sampling), a larger sample size may be required.

Table 2 presents information about sampling methods commonly used in behavioral surveys. Sampling methods fall into two main categories: probability and non-probability. Probability samples are those in which every member of a vulnerable population may be selected into the sample according to a known probability. Probability samples are less prone to bias and also allow calculation of sampling errors. Non-probability sampling is usually used where probability methods, which require the construction of a sampling frame, are not considered feasible, would take too long to carry out, or would be too expensive.

**Table 2. Sampling methods used in HIV/AIDS surveillance**

Sample Type	Description	Advantages	Disadvantages
Non-probability			
Convenience	Essentially, this method samples those members of a population who can be conveniently identified (e.g., IDUs attending treatment or harm reduction services)	Easy, convenient	Risk of significant biases  Sample unrepresentative of vulnerable population as a whole  Difficult to apply statistical tests
Snowballing (also called Network or Chain Referral)	Snowballing relies on members of a vulnerable population to identify others in that population	Low-cost	
Peer-driven sampling	A modification of snowballing, in which identified members of a vulnerable population (e.g., volunteers working for a program) identify other members of that population	Note: Snowballing and peer-driven sampling can lead to greater access to vulnerable populations than convenience sampling	
Purposive	Vulnerable people are selected into the sample because the investigator believes they are typical of the study population		

Table 2. Sampling methods used in HIV/AIDS surveillance (*continued*)

Sample Type	Description	Advantages	Disadvantages
Targeted	A purposeful, systematic method in which controlled lists of specified populations in a geographical district are developed and detailed plans are designed to recruit adequate number of people at each target site		
Probability			
Simple random	This involves defining the entire population and then selecting members using a random method	Few biases, sample is representative of the study population, most statistical theories assume a simple random sample	Difficult for most vulnerable populations, particularly a simple, random sample
Multi-stage cluster sampling	This involves identifying larger subpopulations of vulnerable people— clusters or primary sampling units—that may then be selected at random; members selected at random within the cluster		
Systematic sampling	A method of selecting clusters from a sampling frame; random selection of a particular cluster followed by selection of others as per agreed-upon sampling interval		
Respondent-driven Sampling (RDS)	An extension of snowballing that is more formally controlled to allow for identification of a representative sample		
Other (used as part of a surveillance system among vulnerable populations)			
Ethnographic Assessment	This essentially involves mapping the activities of vulnerable people to identify clusters for a sampling frame (for cluster sampling and in qualitative studies)		
Conventional (venue-based)	Sampling vulnerable people who comprise a fixed population (e.g., brothel-based sex workers)		
Time-location	Sampling vulnerable people who are mobile and tend to visit certain locations at particular times (e.g., cruising sites for MSM)		
Adaptive sampling	Adapting sampling design based on observations made during the survey		

Sampling methods need to be chosen based on site characteristics and feasibility. No one method is perfect, and a mix of different approaches can be complementary, increasing validity and minimizing selection bias. Sampling design should be considered an ongoing and evolving feature of surveillance system, but frequent changes of method may make comparisons between surveys difficult.

Table 3 presents information about methods used to estimate the size of vulnerable populations. Much of this information is summarized from a report by a UNAIDS/WHO working group (UNAIDS/WHO, 2003c).

Estimates of the size of *hidden* populations (particularly those vulnerable to HIV infection such as IDUs, MSM, and sex workers) are important for:

- *Policy development.* Knowing the size of a vulnerable population helps policymakers to respond appropriately to issues affecting vulnerable people and to ensure adequate resources are made available.
- *Program design.* Knowing the size of a population to be served allows prevention responses to be designed at an appropriate scale
- *Program monitoring and evaluation.* Size of a population provided for by a service can be used as a denominator to allow for calculations of program coverage.
- *Estimations of numbers of PLWHA.* In concentrated epidemics, estimates of vulnerable populations can be combined with appropriate HIV-prevalence data to estimate the number of PLWHA in a country. This information allows care, support, and treatment programs to be designed at an appropriate scale. It also allows for estimates of the coverage of such programs and of the completeness of HIV/AIDS diagnosis in a country.

In choosing methods to recommend for a particular country or the E&E region as a whole, the following principles may be useful.

- Avoid any method that may harm vulnerable people or expose an individual to discrimination or arrest.
- Consider the ultimate use of the estimate. (For example, multiplier methods may be the most appropriate for generating national estimates.)
- Start by collecting and using available data.
- Use multiple methods where possible.
- Learn from work conducted in other settings. [For example, Indonesia recently carried out a comprehensive assessment of a wide range of vulnerable populations using mainly multiplier methods (UNAIDS/WHO, 2004b).]

**Table 3. Methods used to estimate size of vulnerable populations: Strengths and limitations**

Name	Description	Strengths	Limitations
Official registration statistics	Many countries register at-risk people	Data are available and are officially recognized	May be associated with punishment, arrest, etc.  Tends to give low estimates
Estimates by NGOs delivering services	NGOs may be able to estimate numbers based on the services they provide	Vulnerable people are likely to trust these services  Based on grassroots knowledge of vulnerable people	May be overestimated to attract resources or for advocacy purposes  Methods often unclear

**Table 3. Methods used to estimate size of vulnerable populations: Strengths and limitations (*continued*)**

Name	Description	Strengths	Limitations
Census	Essentially, this involves trying to count everyone within a given population within a short time span (e.g., all brothel-based sex workers in a country)	Mathematically straightforward  Useful in well-defined visible populations  Useful at the local level	Not suited for hidden populations  Not suited for geographically diverse populations
Enumeration	As with census methods, this involves counting but is based on only a sample of units and then scaled-up (e.g., one-third of all brothels)	Mathematically straightforward  Useful in well-defined visible populations  Useful at local level  Requires fewer people than census  May reach hidden populations better than census	Relatively unsuited for hidden populations  Not suited for geographically diverse populations
Population surveys	General population surveys may be used to estimate the prevalence of a particular behavior within that population	Easy to construct sample frame  Easy to extrapolate  Already exists in many countries  Easy to defend  Politically influential  Robust  May provide minimum benchmark	Household surveys may overlook vulnerable people  Low-prevalence behaviors would require large sample sizes  Rely on self-reporting  Underreporting
Modified Delphi technique (WHO, 2002)	The Delphi method essentially obtains educated guesses from selected experts in a reiterative fashion. It then calculates the average and range.	Speed  Low cost	Difficult to select truly knowledgeable experts  Unreliable results  Non-repeatable  Results have wide ranges
Capture-recapture  (also known as Indicator-dilution, Dual record systems, List matching)	Estimates size from the number of members of the population that appear in multiple samples taken from the same population  Fashionable in 1990s	Useful in hidden populations in contact with two institutions  Appears simple and scientific	Essential conditions rarely met (e.g., independence of samples, equal chance of inclusion in sample, correct identification of <i>recaptures</i> , stable population)  Not easy  Not reliable

**Table 3. Methods used to estimate size of vulnerable populations: Strengths and limitations (*continued*)**

Name	Description	Strengths	Limitations
Truncated Poisson	An extension of the capture-recapture method using multiple data sources; it then estimates the number of people not using the service	Uses data from a single source Easy to compute Low cost May work in developed countries	Complex formula Same conditions required as for capture-recapture Unlikely to work in resource-poor settings
Multiplier methods	Based on knowledge of the number of people who receive a service and the percentage of a particular subpopulation who say they receive that service	Straightforward to use Based on existing records and surveys Most common method used Useful at local level	Undervalued by scientists Data sets must correspond to each other (definitions, time periods, ages, and catchment area)
Nomination methods	Members of a known vulnerable subpopulation are asked to identify others; this approach can be used in association with multiplier methods	Convenient access to hard-to-reach people Useful in highly networked people	Confidentiality issues Risk of exposing vulnerable people to discrimination, arrest, etc. High number of duplicates May be unrepresentative, especially if sub-populations do not mix Least appropriate method
Compartmental methods	Analytic methods focused on subsets of vulnerable populations. Calculation based on size of larger populations	May be useful to analyze subsets of vulnerable population	Data intensive Not used for calculating overall population

These methods—which have laid the foundation of different approaches in different countries—and data—such as reported cases, prevalence of infection, frequency of testing for HIV, and frequency of visits to needle-exchange programs or other services—are increasingly being used as indirect means of calculating population size. With the availability of new laboratory testing procedures such as *detuned assay* (see p. xiii), newer methods for estimating population sizes are being developed. Detuned assay improves information on incidence rates, allowing for more accurate estimates of population size.

Table 4 lists recommended methods for estimating populations of specific vulnerable populations. Final method selection, however, should be based on the available data, the level of expertise available in the country, and the level of precision required in relation to usefulness. This choice will need to be made at the national level based on an assessment of the situation. Use of multiple methods allows one method to be triangulated/cross-validated against another.

Table 4. Estimation methods appropriate for specific vulnerable groups

Vulnerable Population	Commonly Used Method(s)
Clients of sex workers	<ul style="list-style-type: none"> <li>Household-based population surveys</li> <li>Multiplier method based on estimated number of sex workers and behavioral data on partner turnover</li> </ul>
Sex workers	<ul style="list-style-type: none"> <li>Local enumeration/census (especially for brothel-based sex workers)</li> <li>Capture-recapture methods may be suitable for local estimates of street-based sex workers</li> <li>National multiplier methods (based on police lists and local enumeration or on population survey data on number of clients of sex workers)</li> </ul>
IDUs	<ul style="list-style-type: none"> <li>Capture-recapture (where good records exist; may be problematic)</li> <li>Multiplier methods based on treatment services</li> <li>National aggregation of local estimates</li> </ul>
MSM	<ul style="list-style-type: none"> <li>Enumeration of openly gay men</li> <li>Multiplier method (based on enumeration and estimate of percentage of MSM who are openly gay)</li> <li>Household-based population surveys, but underreporting is a drawback or shortcoming</li> </ul>

## HIV/AIDS TESTING

Effective biological surveillance for HIV depends on availability of reliable HIV testing. In almost all settings, this will be based on HIV antibody testing, as HIV antigen, HIV viral nucleic acid, and HIV culture tests are expensive, technically difficult, and more prone to error. Methods of HIV antibody tests include ELISA, rapid tests, and Western Blot. Although testing algorithms based on ELISA/Western Blot combinations remain the *gold standard* in developed countries, UNAIDS and WHO have recommended that countries consider testing strategies for HIV antibody detection that use ELISA and/or rapid assays rather than ELISA and the Western Blot since at least 1997 (UNAIDS/WHO, 1997). Reasons for this are that these combinations are as reliable as the combination of ELISA/Western Blot, are considerably cheaper, and require less laboratory infrastructure and expertise. However, there is considerable resistance to adopting these combinations in the region while developed countries retain the ELISA/Western Blot combination, and particular resistance to the use of rapid tests. These could be very useful, nonetheless, in surveillance activities in the region because they are easy to use, allow testing to be carried out without sophisticated laboratories, and are relatively inexpensive. In addition, the ability to provide results rapidly (in less than 45 minutes) could be extremely useful if following the *surveillance plus* approach among vulnerable populations. Table 5 illustrates the features of rapid tests and ELISAs (UNAIDS/WHO, 2001).

It should be noted, however, that significant hurdles remain in each of the countries to enable use of rapid tests, which are not yet registered by local pharmaceutical committees. To do so requires considerable time and effort, including field trials, development of related *prikaz*, increased counseling skills among those who conduct the rapid test, and clear guidelines to ensure confidentiality and to address ethical issues. CDC did initiate this process in Uzbekistan, with technical assistance delivered to evaluate the efficacy of oral fluid with Simple/Rapid Test. The findings were provided to the government to encourage it to begin negotiations with the private sector, another key element of the process. Finally, use of a rapid test would also eliminate one of the advantages of CDC's surveillance, which additionally includes data on hepatitis C and syphilis.

**Table 5. Features of ELISAs and rapid tests for HIV antibodies**

ELISAs	Rapid Tests
Require laboratories and skilled staff	Results available in less than 45 minutes
Ideal for conducting more than 100 tests per day	Similar sensitivity and specificity to ELISA (Branson, 2000)
May take 2–3 weeks to provide results	Ideal for conducting less than 100 tests per day
Direct cost of \$0.30–2 per test	Easy to use
Indirect cost of \$4–20 per test (e.g., setting up lab infrastructure)	Direct costs \$1–3
	Fewer steps, therefore less risk of administrative error

Selection of an appropriate algorithm for HIV testing depends on three key factors:

- **Testing purpose.** Three key purposes have been identified: blood safety, surveillance, and diagnosis.
- **Sensitivity and specificity of HIV tests.** More sensitive tests may be selected for blood safety purposes to eliminate false negative results, while more specific tests may be selected for diagnosis to eliminate false positive results. In algorithms using two or more tests, the first test should have high sensitivity and the second high specificity. However, all tests should have sensitivity >99% and specificity >95%.
- **HIV prevalence.** As HIV prevalence rises, the risk of false positives decreases and the risk of false negatives rises (UNAIDS/WHO, 1997).

UNAIDS/WHO recommend three strategies for HIV testing (UNAIDS/WHO, 2001). Essentially, all three strategies treat a single negative test (using ELISA or rapid test) as negative. Strategy 1 treats a single positive test as positive, whereas strategies 2 and 3 require two positive tests to diagnose HIV-positivity. Strategies 2 and 3 differ in how they treat discordant results (first test positive, second test negative). Strategy 2 treats these as negative, whereas strategy 3 requires these to be tested with a third test (ELISA or rapid test; see Figure 1, p. 27).

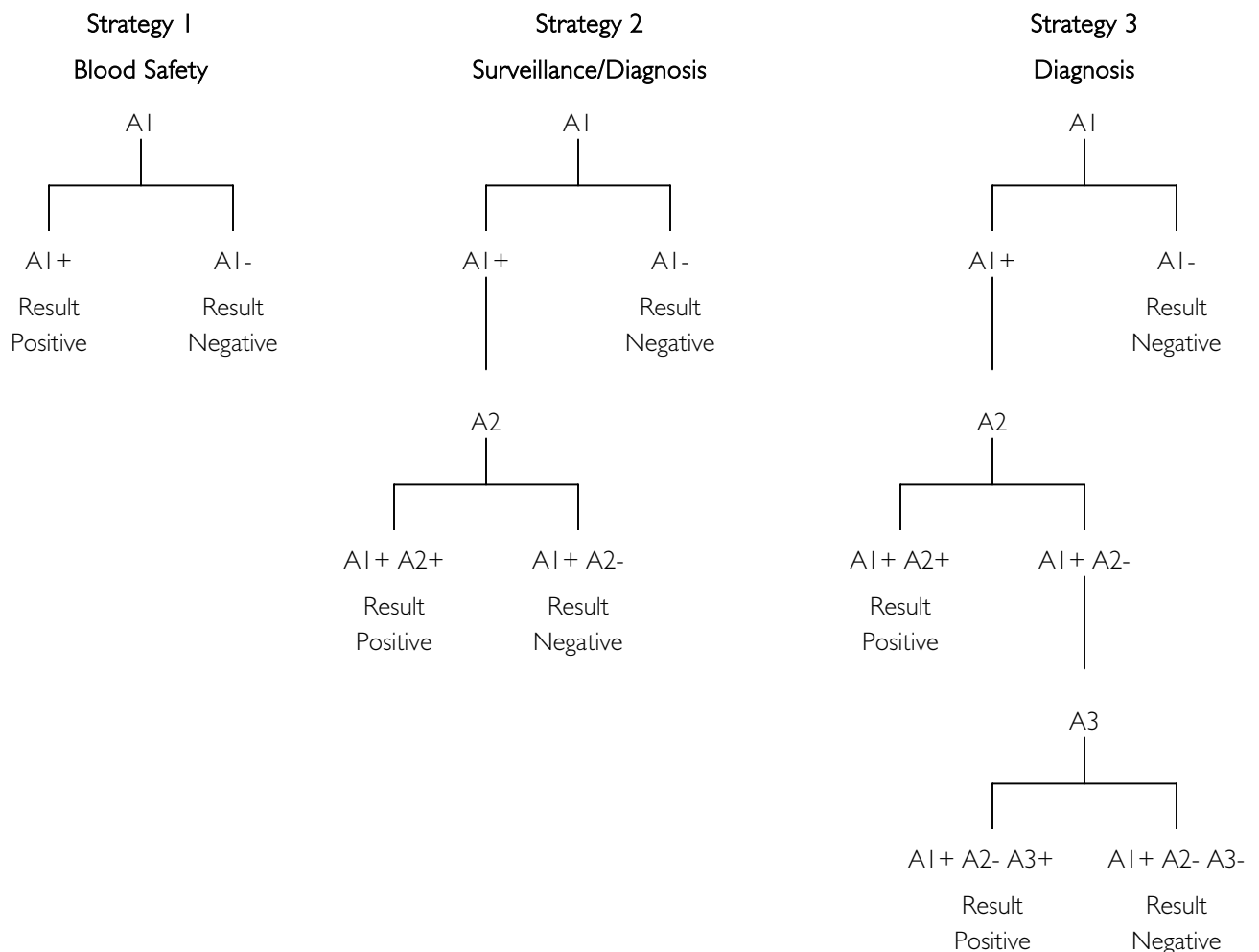


Where using algorithms that require more than one test, the different tests should be based on different antigens. In addition, the first test should have high sensitivity and the second high specificity. Many factors are often considered when deciding which HIV tests to purchase for a country. These include price, donor recommendations or requirements, and manufacturers' influence. UNAIDS and WHO recommend the following steps for selecting HIV tests:

1. Select HIV testing strategy (see Figure 1).
2. Use UNAIDS/WHO recommendations to decide on use of ELISAs or rapid tests (see Table 5).
3. Consider UNAIDS/WHO annual report of operational characteristics of commercially available HIV tests (WHO, 2004).
4. Consider operational characteristics in the field.
5. Consider country conditions.
6. Ideally, evaluate selected kits at the national, regional, and field level (UNAIDS/WHO, 2001).

**Figure 1. UNAIDS and WHO HIV Testing Strategies (UNAIDS/WHO, 2001)**

(A = assay; numbers = order in which assays are performed)



Various methods for taking biological samples are also used for HIV testing for surveillance purposes (UNAIDS/WHO, 2001). The whole-blood method entails taking blood from a vein that is invasive. This requires skilled personnel and may be difficult to conduct within some vulnerable populations, such as IDUs. The need to take venous blood may be avoided by using other methods such as:

- syringe washings (i.e., blood from used syringes)
- dry blood spots (DBS; i.e., blood taken from a finger prick onto filter paper). DBS is increasingly being used in surveillance (by CDC in Central Asia and in many other settings, such as Australia and Canada)
- saliva or urine samples

One important yet often neglected issue when carrying out biologic surveys for HIV is protecting the health and safety of those collecting the blood samples. It may be important to establish standard policies and procedures for protecting these staff, such as systems for glove supply and dealing with needle-stick injuries (to provide post-exposure prophylaxis).

Surveys may be *linked* or *unlinked*. The term *linked* surveys usually means those that include both biological and behavioral elements. Although this type of survey may seem ideal, it does require staff skills in both areas as well as special efforts to ensure one element does not dominate the other.

In addition, the term *linked* is also sometimes used to describe those surveillance methods in which results are given back to those participating (UNAIDS/WHO, 2001). This is also sometimes called *surveillance plus* (see p. xiv). This approach has been used by CDC in Central Asia and may be particularly appropriate in settings where essential health services, such as free and confidential STI diagnosis, and HIV VCT and treatment, are not available to members of vulnerable populations. Indeed, this approach may be the only ethical one in such settings. However, there are concerns over the surveillance plus approach because it may introduce theoretical biases into the sampling method. For example, if receiving the result is the main reason people participate in the survey, people who have already been tested and know their results may not participate. As a result, prevalence rates may be underestimated. On the other hand, if someone has been exposed, that person may want to get tested, thereby overestimating the prevalence. The direction of bias in these circumstances will be difficult to assess.

Behavioral surveys' traditional reliance on the administration of questionnaires can be problematic, particularly if the questionnaire material is too long or complex. Other qualitative research methods, such as the use of focus group discussions and semi-structured interviews with key informants, could be used to supplement the traditional questionnaire method.

## **USING SURVEILLANCE DATA TO MEET DONOR REPORTING REQUIREMENTS**

Based on the UNAIDS *Three Ones* strategy (one national plan, one coordinating body, one monitoring and evaluation system), an ideal response to the HIV/AIDS epidemic would include use of an agreed-upon national monitoring and evaluation system and HIV/AIDS strategic framework in each country. Optimal M&E would be a system that allowed for the monitoring of the national epidemic and the response, and for reporting on international commitments [e.g., UNGASS<sup>10</sup> (Drew, 2004)]. It would also include all major donor-funded initiatives.

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<sup>10</sup> In 2001, there was a United Nations General Assembly Special Session that resulted in a declaration of agreed-upon commitment. UNAIDS has developed a series of 18 key indicators to monitor the implementation of this declaration at national and global levels. A preliminary report on progress in implementing this declaration, based on these indicators, was published by UNAIDS in 2003.

Under such a system, biological and behavioral data collected from surveillance among vulnerable people would be essential for monitoring and evaluating outcomes and impact.<sup>11</sup> Based on these theories of optimal surveillance, a group of donors and UN agencies published an integrated set of HIV/AIDS indicators in 2004 (WHO et al., 2004). For concentrated epidemics, key indicators to be used in surveillance activities are: HIV prevalence among vulnerable people (particularly IDUs, sex workers, and MSM) and percentage of vulnerable people who have adopted behaviors that reduce transmission of HIV.

In 2002, UNAIDS issued detailed guidelines on how indicators might be constructed to allow for reporting on the Declaration of Commitment made at UNGASS in 2001 (UNAIDS, 2002c). For concentrated epidemics, it recommended monitoring:

- HIV prevalence in sex workers, MSM, and IDUs in the capital city every two years
- injecting and sexual behavior among IDUs every two years (which would entail the use of very specific questions<sup>12</sup>)
- condom use in last commercial sex and last anal sex (among MSM) every 4–5 years [as additional indicators]

To report effectively, as per the UNGASS guidelines, the surveillance system sample would need to include the capital city and surveillance questions would have to be formulated according to the UNAIDS guide. Thus far, Kazakhstan, Kyrgyzstan, and Uzbekistan have submitted 2003 country reports for UNAIDS' interim report on progress toward UNGASS implementation (see Annex 7; UNAIDS, 2003b; Republic of Kazakhstan, 2003; Kyrgyz Republic, 2003; Republic of Uzbekistan, 2003).

Surveillance data are likely to be important for all major intervention programs (e.g., those supported by the Global Fund) by facilitating program design, monitoring, and reporting. In principle, the Global Fund evaluates efforts it funds at two different levels: what is being done (*coverage*) and the effect (*impact*) it has. The latter type of evaluation should be carried out largely through the use of surveillance data on HIV prevalence and behavior among vulnerable groups. To date, however, grant agreements between Global Fund and its principal recipients have mainly focused on coverage. In some cases, impact indicators are recorded in program proposals (see Annex 8).

## OVERCOMING OBSTACLES

A number of key obstacles have been identified for the E&E region, including:

- **Absence of baseline data.** Many countries have no baseline data on key indicators (such as HIV prevalence and sexual/injecting behaviors of the most vulnerable people). Therefore, rapid collection of key baseline data (HIV prevalence in vulnerable people, estimation of subpopulation sizes, and documentation of behavior driving the epidemic) is an essential, initial priority. CDC did this in Kazakhstan and Uzbekistan via two studies comparing outbreak and non-outbreak towns (Temirtau and Karaganda in Kazakhstan, and Yangiyul and Chirchik in Uzbekistan).

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<sup>11</sup> Under most approaches to HIV/AIDS M&E, changes in behavior are seen as “outcomes” and changes in HIV prevalence as “impact”; under the GFATM approach, both types of changes are viewed as “impacts.”

<sup>12</sup> The first question is whether a person has injected drugs within the last month. Those who indicate they have should then be asked if they have shared injecting equipment in the last month and/or if they have had sex during the last month. If the answer concerning sex is yes, they should then be asked if they used a condom during last sex. For the surveillance calculation, the numerator is the number of people who have not shared injecting equipment in the last month *and* who used a condom during last sex. The denominator is the number of people who have both injected drugs *and* had sex in the last month.

- **Limited technical expertise.** Most countries do not have the local capacity to develop the necessary surveillance systems and thus require some form of international technical assistance. In Central Asia, most of this assistance has been provided by CDC. Based on analysis of this support, several criteria (see p. 13) have been identified for this type of international technical assistance.
- **Poor coordination and fragmentation of surveillance efforts.** In many settings, surveillance efforts are introduced, but in a fragmented, uncoordinated manner. Progress has been made in this area in Kazakhstan, where CDC and UNAIDS have reached consensus on who should provide technical assistance in different thematic areas. More progress could be made, however, if surveillance were considered a mandatory part of a national HIV/AIDS monitoring and evaluation system. A key requirement would be ongoing documentation of all surveillance activities within a country.
- **Failure to embed surveillance efforts in national structures.** The E&E region has a particularly high level of government-dominated centralization of its national structures. Failure to embed surveillance activities within these preexisting structures means that governments will not own the data—and thus most likely will not use it. CDC's approach in Central Asia can be seen as a best practice in its ability to ensure that the government authorizes the activities and is involved in their implementation. The Global Fund approach may be seen as an alternative model. In all three countries visited, the national government is the principal recipient of Global Fund monies. Therefore, even if the actual services are contracted to outside organizations, the government entity experiences some sort of ownership for all activities.
- **Over-reliance on case reporting and inappropriate HIV testing.** Many countries are slowly moving away from the Soviet approach of total, mass population screening (which often tested large numbers of people compulsorily, inappropriately, and with very low rates of return). Kazakhstan, Kyrgyzstan, and Uzbekistan report they have changed their policies on this issue. There appears to be a considerable lag, however, between change in policy and changes in actual practice. This gap is most stark in Uzbekistan, where the least real change has taken place. The most evidence of real changes can be seen in Kyrgyzstan.
- **Limited capacity in key areas, including:**
  - **Human resources:** In Central Asia, CDC has a particular focus on strengthening the capacity of medical specialists working within the government system (through training events, peer support and mentoring).
  - **Laboratory facilities:** USAID and CDC have made a considerable investment in strengthening laboratory facilities in Central Asia. This has included providing training and methodological support, establishing quality assurance systems, and strengthening infrastructure.
  - **Transport:** In Central Asia, vehicles were provided to allow for privacy for vulnerable people participating in surveys under field conditions.
- **Failure to focus on most vulnerable populations.** Although this is changing, there is still a tendency to define vulnerable populations very broadly (e.g., *young people*). In Central Asia, surveillance activities do include the most vulnerable subpopulations (i.e., IDUs, sex workers, MSM, and prisoners). Current activities, however, also include people with STIs

and pregnant women, and there is current pressure from government officials to expand the definition of *vulnerable populations* even further.

- ***Slow and limited analysis, use, and dissemination of data.*** There is little focus on identifying who needs what information, in what format, and when. There are many examples of data production that is much too slow for actual programming purposes (e.g., a delay of more than one year to receive maps from the PLACE study in Osh). These problems can be overcome by emphasizing analysis, use and dissemination of data from the start, and by:
  - building critical analytic skills at the national and local level
  - involving a range of people in the interpretation of surveillance results (e.g., epidemiologists, social scientists, community members, and NGOs)
  - identifying information users and different ways they can share information
  - emphasizing the importance of local feedback and alternatives to written reports
  - stressing the use of timely data to redesign interventions
  - holding regional meetings to generate documentation (e.g., in Tashkent in 2003 and in Astana in 2004)
  - cataloging all surveillance activities
- ***Weak culture of medical ethics and confidentiality.*** In the E&E region, structures for ethical approval of research studies have been either weak or poorly developed. In Central Asia, CDC has supported the development of U.S. accredited institutional review boards for evaluation of ethical aspects of proposed surveillance activities.

## **POLITICAL ENVIRONMENT**

All three countries visited have highly centralized governance systems based on the historic Soviet model. Therefore, all new initiatives require a detailed *prikaz*, developed and issued by the responsible government ministry. In the case of HIV/AIDS, this role falls to the ministry of health. A *prikaz* is usually issued first at the national level, with subsidiary *prikaz* issued at the oblast level, as required.

CDC reports that *prikaz* development has been an essential part of their work in developing surveillance systems in Central Asia. However, it is extremely time-consuming. For example, in Kazakhstan, it took at least one year to develop. USAID in Uzbekistan reported the most effective way to develop a *prikaz* was to form a working group of appropriate professionals within the Ministry of Health that then worked on developing the *prikaz* under the guidance of external technical support. Although this approach is more time-consuming than drafting the *prikaz* content externally and presenting it to the government for adoption, it is more effective in the long term, as it builds government ownership and thus provides a significant support base for future developments.

However, a centralized, *prikaz*-led initiative may create and embed inappropriate responses. For example, it may require annual surveys among all specified subpopulations in cases where less frequent surveys may be more resource-efficient. Such a *prikaz* may also require the surveillance system to be expanded to cover the entire country, when it in fact may be more resource-efficient to focus just on areas where the problem exists and to use other techniques (e.g., Rapid Assessment and Response to detect outbreaks in other settings).

The biggest factor affecting the development of HIV surveillance activities, in particular, and the response to HIV/AIDS, in general, is the overall macro-political environment. For example, in a country such as Kyrgyzstan, which is embracing openness and political reform, the process is much easier than in one such as Uzbekistan, which is suspicious of change and is largely following an unreformed Soviet model.

## **LEVELS OF TECHNICAL REQUIREMENTS**

Establishing national systems for HIV/AIDS surveillance requires a level of financial and human resources. Although the exact level of these will depend on individual national situation, this section attempts to present some principles regarding human resources and some illustrative information regarding financial costs of activities carried out in Central Asia.

Three levels can be identified at which human resources will be required:

1. *Funding agency.* If an agency is planning to provide financial resources to support development of HIV/AIDS surveillance systems, it will need some managerial and technical human resources to design the scope of work and to review progress reports. In the case of USAID, this might be provided by one or more staff with responsibility for health and/or HIV/AIDS in-country or who may need to be brought in where such expertise does not exist, for example through use of consultants or from elsewhere within USAID.
2. *Agency providing technical assistance.* The establishment of a surveillance system in a country is multifaceted and should involve professionals from different fields contributing toward its development. That is, it should involve policymakers at high levels of government, medical professionals, social scientists, epidemiologists, statisticians, legal experts and judiciary, policy analysts, NGO representatives, program analysts, administrative and finance managers, and groups involving IDUs, PLWHA, sex workers, etc. The human resources required to provide technical assistance in-country will depend on the nature and level of expertise being provided. In most cases, however, an in-country or regional presence is likely to be required. CDC has provided services at the regional level (developing environment for a policy change) and as a focus on building in-country capacity to carry out surveillance nationally. One point stressed by CDC staff was the time spent by them over a long period in building relationships and capacity of national counterparts. However, as much of the technical support is provided by CDC local staff, it could be argued that similar support could be provided by a strengthened national agency, backstopped by international support.
3. *National level.* CDC's approach has been to try to use existing structures and to strengthen human capacity within those. This may be an appropriate strategy in much of the region where there are probably adequate numbers of people within the health structures, but they may lack skills and experience. It is essential, however, to ensure that they have skills in all required disciplines, such as sociology as well as medical epidemiology, and that they have skills in working supportively with members of vulnerable groups. A particular area of importance relates to the analysis, use, and dissemination of data. While this function may be taken on by existing structures at regional and national level, there may be a place for a central coordination unit, perhaps linked to a unit with overall responsibility for monitoring and evaluating the country's response to HIV/AIDS.

Although some difficulties were experienced in obtaining financial details of surveillance activities carried out, information was supplied by both MEASURE Evaluation and CDC. This information is self-reported and has not been verified by the assessment team.

MEASURE Evaluation reports that the total cost of implementing PLACE in four cities of Central Asia was around \$390,000. This was broken down into around \$160,000 local costs (approximately \$20,000 per assessment, with two assessments in each of four sites). The remaining \$230,000 covered University of North Carolina's costs, including related overhead, five support visits, and the production of many reports.

CDC estimates that the cost of sentinel surveillance was approximately \$216,000 per site for the first year of program implementation. A detailed breakdown is provided in Table 6.

<b>Item</b>	<b>Cost</b>	<b>Detailed Description</b>
Policy-making	\$10,000	Meetings with MOH and HIV/AIDS center officials; drafting <i>prikaz</i> ; discussions at roundtables and conferences; <i>prikaz</i> duplication; study tours
Training	\$80,000	Introductory HIV sentinel surveillance training; Epi-Info data entry and analysis training; roundtable on HIV sentinel surveillance data presentation
Field work	\$2,000	HIV sentinel surveillance outreach workers training; transportation; incentives; medical personnel and interviewers payment; HIV sentinel surveillance among patients with STIs, pregnant women, and MSM
Test kits	\$4,500	HIV, hepatitis C, and syphilis
Medical supplies	\$1,000	Gloves; alcohol pads; filter paper; tips for pipettes; lancets; plastic bags; medical robes; sharps' collector; goggles; markers
Personnel	Varies by country; approximately \$30,000 per year	1 or 2 local consultants per country; 1 full-time CDC employee per country (depending on the size of the population; approximately 1 person for every 15 million population)
Equipment	\$7,500	Computer; printer; vehicle for HIV/AIDS centers
Materials duplication	\$1,000	Questionnaires, reporting forms
Data use and dissemination	\$80,000	Final reports publication; roundtables to present HIV sentinel surveillance data
<b>Total</b>	<b>~\$216,000</b>	

These figures, however, seem to exclude the cost of laboratory equipment purchases.<sup>13</sup> Some costs (such as those for vehicle purchases) seem low, whereas others (such as those for training and data use/dissemination) seem high.

<sup>13</sup> Estimated at \$20,000 per site

## REGIONAL LINKAGES

As mentioned above, coordination of efforts to support strengthening of HIV/AIDS surveillance is essential. Three key areas are highlighted here:

- **Coordination with other funding organizations.** At the national level, activities are often driven by availability of funds. In some cases, there may be poor coordination between donors resulting in implementing agencies' feeling pulled in different directions. There have been efforts at the international level to address this (e.g., through efforts to harmonize HIV/AIDS indicators).
- **Key role of United Nations agencies (particularly UNAIDS).** Although in many countries the key UN agencies in this field (UNAIDS and WHO) have limited funding and extremely limited capacity, their influence is considerable, particularly on technical matters, as views endorsed by them are seen as representing international best practice in a balanced and nonpartisan manner.
- **Key training resource.** [e.g., the Andrija Stampar School of Public Health (ASSPH), which was designated as a WHO knowledge hub for surveillance in the region in September 2003 (Bozicevic et al., 2004b; Bozicevic, 2004; Andrija Stampar School of Public Health/WHO/GTZ, 2004).] A series of five modules of training has been developed to date aimed at key national staff involved in implementing second-generation surveillance systems. Modules are available in English, and Russian versions are planned. They include:
  - *Module 1. Introduction.* Prepared by: Professor Ralf Reintjes, PhD, Hamburg University of Applied Sciences and ASSPH
  - *Module 2. Behavioral Surveillance.* Prepared by: Institute for Global Health, University of California, San Francisco and ASSPH
  - *Module 3. Biologic Surveillance.* Dr. Catherine Ammon, Institute of Social and Preventive Medicine, University of Geneva and Croatian Institute for Public Health
  - *Module 4. STI Surveillance.* Dr. Kevin Fenton, Head, Department of HIV and Sexually Transmitted Infections, Communicable Disease Surveillance Centre, London, United Kingdom (Bozicevic et al., 2004a)
  - *Module 5. Hard to Reach Populations.* Dr. Anna Rhodes, HLSP Consulting, Barcelona, Spain, and ASSPH (Bozicevic, 2004).

## CONCLUSIONS AND RECOMMENDATIONS

The main conclusions of this assessment are summarized in the Executive Summary (see p. ix). This section contains a number of general recommendations related to the countries of the E&E region and a series of more specific recommendations for USAID and other international organizations seeking to provide financial and technical support in this field.

### GENERAL RECOMMENDATIONS FOR COUNTRIES

- I. HIV/AIDS surveillance activities should not be seen as an end in themselves, but rather as a tool to focus HIV/AIDS programs where they are most needed. In the region, this focus should be on those people most vulnerable to the epidemic, namely IDUs, sex workers, and MSM.



2. Surveillance systems should focus on measuring HIV prevalence and understanding risk behavior in vulnerable populations and on estimating the size of these vulnerable populations. It is recommended that estimates of population size be based on available data, particularly through the use of multiplier methods.
3. Surveillance activities should be seen as part of the HIV/AIDS national M&E system as envisaged under the UNAIDS *Three Ones* strategy. It is recommended that surveillance activities involve a range of organizations, including government agencies and NGOs.
4. Passive case reporting will remain a useful source of surveillance data in countries of the region. It is recommended that these systems:
  - a. Ensure that testing is voluntary, confidential, and supported by counseling.
  - b. Ensure that quality assurance and control principles are in place for testing and counseling.
  - c. Identify barriers to change (e.g., testing requirements, financial incentives).
  - d. Reform policies.
  - e. Attempt to change mindsets.
  - f. Improve interpretation of case-based data.
5. It is recommended that each country adopt clear algorithms for all aspects of HIV testing (e.g., blood safety, surveillance, and diagnosis). These methods should be largely based on use of ELISAs and rapid tests, as recommended by WHO and UNAIDS. Each country should ensure that its laboratory system has sufficient capacity to conduct HIV testing effectively, including reliable internal and external systems of quality control.
6. Given the lack of availability of confidential, trusted VCT services in many of the countries of the region, it is recommended that surveillance systems use the *surveillance plus* approach (that is, return test results to study participants and support those individuals with counseling and appropriate treatment). This approach may need to be revisited as the availability of VCT improves.
7. Given that HIV/AIDS surveillance activities are not an end in themselves, but rather a means to ensure programs focus on the most vulnerable people, it is recommended that countries' surveillance systems emphasize analysis, use, and dissemination of data from the start. In particular, this should include:
  - a. building critical analytic skills at the national and local level
  - b. involving a range of people in interpretation of results of surveillance (e.g., epidemiologists, social scientists, community members, and NGO representatives)
  - c. identifying users of information and methods of sharing information
  - d. emphasizing importance of local feedback and alternatives to written reports
  - e. emphasizing use of timely data to redesign interventions
  - f. holding regional meetings to generate documentation (e.g., in Tashkent in 2003 and in Astana in 2004)
  - g. cataloging all surveillance activities

8. Recommendations follow for technical and financial support from USAID and other international organizations at three different levels of financial and time commitment.

*In settings where financial resources available are low (<\$250,000 per year) and USAID's time commitment is limited (perhaps less than 2 years):*

- Support an initial assessment of HIV/AIDS surveillance activities in the country
- Support one-time studies to collect priority, baseline data, i.e., HIV prevalence and behavioral data among vulnerable populations
- Support one-time HIV/AIDS surveillance training activities, e.g., study tours
- Support coordination and documentation of surveillance activities supported by different donors with the aim of identifying and filling gaps

*In settings where financial resources available are medium (\$250,000 to \$1 million per year) and USAID's time commitment is medium term (perhaps 2–5 years):*

- Support all activities under "low" plus...
- Where national capacity is limited, contract an international agency to provide ongoing technical support. Criteria for such an agency might include:
  - credible technical expertise in both biological and behavioral elements of surveillance
  - leadership and ability to work constructively with the government
  - presence in region/country
  - knowledge of region/country, including policies, decision-making structures and culture
  - capacity to take on additional work
  - personal contacts
  - connections to international standards
- Provide intensive support for national capacity development, including training, laboratory strengthening, and transport
- Support national policy development efforts, including reform of case reporting system, and institutionalization of sentinel surveillance systems and policies on medical confidentiality. Reform of the case reporting system should focus on:
  - ensuring testing is voluntary, confidential, and supported by counseling
  - ensuring that quality assurance and control principles are in place for testing and counseling
  - identifying barriers to change, e.g., testing requirements, financial incentives
  - reforming policies and attempting to change mindsets
  - improving interpretation of case-based data

*In settings where financial resources available are high (>\$1 million per year) and USAID's time commitment is long-term (perhaps >5 years):*

- Support all activities under “medium” plus...
- Consider support for cohort studies, surveillance for mother-to-child transmission, drug-resistance monitoring, monitoring of genotypes, modeling of incidence based on behavioral data, and/or behavioral surveillance of HIV-positive people

*Support to regional activities, e.g., by regional bureau*

- Support regional initiatives, e.g., training offered by Andrija Stampar School of Public Health in Zagreb, Croatia, and regional surveillance activities related to mobile populations such as sex workers.
- Use regional funds to support development of surveillance activities in a particular country as a pilot/model from which other countries could learn
- Support development of a regional network to collect and share standardized information concerning the HIV/AIDS situation and response in the region



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## **ANNEXES**



## **ANNEX I. SCOPE OF WORK**

Assessment of HIV/AIDS Surveillance in the Europe and Eurasia (E&E) Region and the Development of a Field Guide for USAID E&E Managers and USAID/Washington Program Managers

Scope of Work

September 20<sup>th</sup> 2004 to February 28<sup>th</sup>, 2005

### **I. IDENTIFICATION OF TECHNICAL ASSISTANCE**

The USAID [Geographical Bureau] for the Europe and Eurasia Region (E&E) has requested the Synergy Project to provide technical assistance in assessing HIV/AIDS surveillance methodologies and specifically look at the Central Asian Republics experience in strengthening surveillance as a basis for developing a field guide for use by USAID health program managers in the E&E Region and USAID/Washington. For these decision makers and program managers, the assessment will provide better information on the approaches, tools, associated costs and results available through behavioral and seroprevalence HIV/AIDS surveillance of at risk populations in this region. The development of an assessment report, PowerPoint presentation, and practical field guide will summarize key factors and best practices in the use of HIV/AIDS surveillance systems and provide advice to field and USAID/Washington health program managers on priority investments, human and financial requirements, and the next steps in improving knowledge of HIV/AIDS in the region and elsewhere. Overall, investment in HIV/AIDS in the region is much lower than in other parts of the world so decisions about investment in surveillance must be weighed against other HIV/AIDS priorities.

The essential components of this assessment are:

1. a review of relevant surveillance literature and current experience in collecting and using the data in the E&E Region and elsewhere to identify best practices in HIV/AIDS surveillance, design, implementation and analysis, with particular reference to the E&E region and to populations who engage in high risk behaviors such as injecting drug use (IDU), commercial sex work, and others;
2. an assessment of the CAR experience in adapting surveillance methodology, gaining national and local support and strengthening surveillance in the Central Asia Republics;
3. recommendations for the E&E Bureau about priority investments in HIV/AIDS surveillance in a resource-constrained environment; and
4. the development of a field guide for E&E health managers, based upon the assessment report, on how to commission, conduct and use HIV/AIDS surveillance tools.

## **II. BACKGROUND**

### **REGIONAL BACKGROUND**

HIV/AIDS is growing exponentially in the countries of Europe and Eurasia. Good quality surveillance data on the nature and magnitude of the epidemic, principal modes of transmission, and the size and types of most at risk populations are essential to respond effectively to HIV/AIDS.

Unfortunately, a key issue consistently raised is the lack of good data on the true incidence and prevalence of HIV in the region as well as the size, nature, and location of those infected and affected. There is, for example, consensus that as much as 1 to 1.5 percent of the adult population in Russia and Ukraine is infected but no agreement on to what extent infection has spread beyond certain populations who engage in high-risk behavior, such as injecting drug use, and the size and location of these populations. There is even less information on the epidemic in many Eastern European countries where prevalence is believed to be very low. This impedes the design and management of effective programs to combat and contain the disease and perhaps, lulls national leaders and policy makers into a false sense of security about the risk of HIV/AIDS in their countries. This overall lack of information has also become an important issue as E&E countries receiving grants from the Global Fund for AIDS, Tuberculosis and Malaria (GFATM) establish mandatory HIV/AIDS monitoring, evaluation, and reporting systems.

In most countries of the E&E region the HIV epidemic is “concentrated” in high risk groups which, to date, have not been routinely included in national sentinel surveillance systems. The latter are also limited and, in some cases, waste valuable resources by testing populations at low risk.

In general, the collection of better incidence and prevalence data are especially useful when combined with behavioral data. Both seroprevalence and behavioral surveillance surveys (BSS) can serve as an early warning system by indicating which populations are at risk and suggest the pathways the virus might take if nothing is done to break its speed. BSS is particularly useful because it can identify sexual links or other bridges to the general population and provides information to advocate for increased action by political and community leaders.

BSS data are also critical for program design, implementation, and monitoring and evaluation. Once at risk groups are identified and their size and location estimated, program planners can design and implement initiatives focused on breaking the links in the chain of transmission. Finally, BSS can provide a basis for determining program success and the contributions of various packages of services or policy changes and thus inform future program development and resource allocation.

### **SURVEILLANCE IN THE CAR**

One place in the E&E Region where there has been a systematic attempt to improve the methodology, data on HIV/AIDS prevalence and subsequent program priorities is Central Asia. The USAID Mission in Central Asia, through its support of the US Centers for Disease Control and Prevention (CDC), is strengthening national HIV surveillance systems in four countries to increase the availability and use of high quality, reliable and scientifically proven data for HIV case identification, seroprevalence surveillance, estimates of at risk populations, and program design and monitoring.

Through CDC, USAID is establishing 11 HIV/AIDS surveillance sites in Kazakhstan, Kyrgyzstan, Uzbekistan, and Tajikistan to assist these governments with collecting reliable information on the HIV level within high-risk populations. As part of this assistance program, USAID through CDC, is

providing 41 sets of virology equipment to enable collection of quality data on the prevalence of HIV and associated infections, i.e. identify HIV cases and carry out integrated surveillance. Trained by CDC, local experts in those sites are now able to routinely collect and analyze data according to international standards. USAID also supports improvement of laboratory diagnostic data through a laboratory quality assurance program established through CDC.

Based on previous experience, CDC has taken an approach focusing on an integrated surveillance of HIV/AIDS and other blood borne infections and sexually transmitted diseases. It is expected that this approach will enable identification of weak links in the chain of HIV transmission and provide the means to develop targeted interventions to stop the spread of the disease.

In partnership with the University of North Carolina, USAID/CAR has supported behavioral surveillance and use of the PLACE methodology to help identify high HIV transmission areas. The study was conducted in four cities of Central Asia: Almaty, Tashkent, Karaganda, and Osh. It helped to identify the areas with a high risk of HIV transmission and demonstrated significant overlap between youth, sex workers, clients, and IDUs; a high percentage of men visiting sex workers; and the existence of bridges between sex and drug networks in those areas.

With USAID/CAR support, the Johns Hopkins Bloomberg School of Public Health and the Government of Tajikistan, acting through the Ministry of Health and designated local partners, are working together on a behavioral survey among injecting drug users (IDUs) to determine the prevalence of HIV, hepatitis C and several sexually transmitted diseases. The findings will help to improve policy and programs targeting IDUs.

A key issue for the E&E assessment will be how these various approaches and the resulting analysis have or are expected to affect national policies and program and shape and evaluate HIV/AIDS interventions and program results.

### **III. OBJECTIVES OF THE ASSIGNMENT**

The primary objectives of this assignment are to (a) review current literature on surveillance methodologies, (b) assess USAID/CAR's HIV/AIDS surveillance systems, (c) capture lessons learned and best practices, and (d) develop a practical field guide for E&E Regional health managers. This will be accomplished by:

- a) Conducting a review of current literature and experiences in using surveillance data to develop regional and country estimates of HIV prevalence and the size of the at-risk population. This review will identify key documents and include interviews with regional surveillance experts to build upon recent UNDP and UNAIDS experiences in developing updated estimates of E&E regional and country HIV/AIDS prevalence, specifically on sampling methods for IDUs;
- b) Conducting an assessment of and capturing of the lessons learned from USAID/CAR's HIV/AIDS surveillance activities;
- c) Making recommendations for E&E field managers and for USAID/Washington and other donors about priority investments in HIV/AIDS surveillance to improve policy and programs in the region, and;
- d) Developing and preparing a practical field manual for E&E program managers. Essentially, this guide will be a "road map" or "how to" manual for program managers contemplating activities to strengthen surveillance systems in this region.

The Scope of Work will focus on implementing tasks that will:

- Examine USAID/CAR's experience with different HIV/AIDS surveillance approaches to high risk populations and review the literature on other models or approaches to surveillance. Determine what elements of the program were successful and why; which approaches give the largest return and whether some combination of approaches rather than a single approach is necessary for success.
- Describe current methodologies for determining/defining the nature and size of at risk populations and recommend those methodologies most appropriate for the E&E region.
- Recommend ways that the surveillance data can be collected, analyzed and reported to meet the reporting requirements of USAID, the Global Fund and/or UNGASS.
- Identify the key obstacles in developing and implementing surveillance strengthening activities and how these can be overcome. (Using CAR as the example or other findings from the literature review and applied to E&E if possible.)
- Identify the key conditions that are necessary for success. Are there some environmental conditions (political will, existing relationships, community mobilization, etc) that are of paramount importance?
- Outline prikaz (policy), government regulatory, and development processes. For example, how did the Mission address political concerns and obtain the necessary support and required orders to proceed with developing and implementing activities? Are there certain socio-political environments more conducive to successfully overcoming this hurdle?
- Determine levels of technical requirements in terms of staff or other resources that are essential. Estimate the time, financial and human investment required to develop and maintain HIV/AIDS surveillance systems.
- Explore and establish links between this product and other resources available in the region. For example, UNAIDS and the WHO Knowledge Hub on surveillance at the Andrija Stampar School of Public Health in Zagreb, Croatia.

## **IV. DELIVERABLES**

### **Phase 1: Literature review and interviews with key experts**

1. Report of Findings: Literature Review and Key Expert Interviews (up to 10 pages). This report on key findings of the pre-fieldwork components shall include a brief analysis of the literature review, list of key documents, and findings from the interviews with key informants. It shall be submitted to USAID/Washington E&E and The Synergy Project before **October 11, 2004**.

### **Phase 2: Conducting Fieldwork and Site Visits in Central Asia**

2. Team Planning Meeting. Upon arrival in the country, the consultant team will brief key USAID/CAR personnel. The purpose of this meeting will be to (a) orally report on the findings of the literature review and key informant interviews, (b) review goals and objectives of the assignment, (c) discuss interview guidelines, and (d) review the schedule of activities and site visits.
3. Conduct Fieldwork and Site Visits. These shall be completed in accordance with the schedule established in the team planning meeting.

4. Working Draft of Key Findings (up to 30 pages, plus annexes): The consultant team members will synthesize the information gathered from site visits on an ongoing basis to prepare a working draft of key findings from Phase 1 and Phase 2 (pre-fieldwork and fieldwork)
5. Briefing of key findings and recommendations: The consultant team members shall present to USAID/CAR Mission Staff, CDC regional staff, and others as requested by the Mission **prior to departure**.

### **Phase 3: Preparation of the Assessment Report, Advocacy Tool PowerPoint Presentation, and Practical Guidelines for Field Managers and USAID/Washington Program Managers**

6. Draft #1 Assessment Report (20 to 30 pages): Draft #1 Assessment Report shall be submitted to USAID/Washington E&E by **November 25, 2004** for review. Comments returned to the team members and Synergy from USAID/Washington E&E, will be incorporated by the Team Leader into the final version of the Assessment Report.
7. Advocacy Tool PowerPoint Presentation Draft #1. This draft presentation shall be submitted to USAID/Washington E&E by **November 25, 2004** for review. Expected duration of this presentation is 45 minutes to one hour and will include 30 to 35 slides. Comments returned to the Team from USAID/Washington E&E will be incorporated by the Team Leader into the final version of the PowerPoint Advocacy Tool. The Team Leader shall submit the revised presentation to The Synergy Project by **December 17th, 2004** in order to begin the editing process (reference Deliverable #9 below).
8. Final Assessment Report. The final assessment report shall be submitted to USAID/Washington E&E and The Synergy Project by **December 17th, 2004**. The Synergy Project, in collaboration with the Team Leader, will finalize and deliver 20 bound copies of the final version and a .pdf electronic file of the Assessment Report to USAID/Washington E&E by **January 7th, 2005**.
9. Final Advocacy Tool PowerPoint Presentation: In collaboration with the Team Leader, Synergy will complete the review and editing processes (reference Deliverable #7 above) and deliver the final version of the Advocacy Tool PowerPoint presentation to USAID/Washington E&E by **January 7th, 2005**.
10. Draft of Practical Guide for Field Managers and USAID/Washington Program Managers (4-6 pages). The draft shall be submitted to USAID/Washington E&E and Synergy by **November 25th, 2004** for review. Comments received will be incorporated by the Team Leader for the final version of the Guide. The Team Leader shall submit the revised Guide to The Synergy Project by **December 17th, 2004** in order to begin the editing process (reference Deliverable #11 below).
11. Final Practical Guide for Field Managers and USAID/Washington Program Managers. In collaboration with the Team Leader, Synergy will complete the editing processes (reference Deliverable #10 above). Fifty hard copies and a .pdf electronic file of the final Guide shall be submitted to USAID/Washington E&E and Synergy by **January 7th, 2005**.

### **Phase 4: Presentation of Findings to USAID/Washington**

12. Presentation of Key Findings and Recommendations. This presentation will be conducted by the Team Leader and Senior Consultant for the USAID/Washington E&E Regional Bureau senior management staff, and others as directed. The date of this presentation shall be no later than **February 28, 2005**.

## **V.METHODOLOGY**

It is expected that a three person team will be needed to complete this activity, including a Team Leader, a Senior Consultant, and Regional Advisor. The level of effort for this assignment is not expected to exceed 108 (47 days for the Team Leader, 42 days for the Senior Consultant, and 19 days for the Regional Advisor).

The Team Leader and Senior Consultant will review relevant literature, conduct interviews with key experts, perform site visits and field work, prepare a Field Guide, and a PowerPoint presentation for use as an advocacy tool, and provide an assessment report with the findings, conclusions, lessons learned, and recommendations for field managers and USAID/W. The Regional Advisor will take part in all fieldwork and site visits. Tasks to be accomplished are divided into four phases.

### **Phase 1: Literature review, interviews with key experts, and preparation of the Report of Findings**

As a first step in the evaluation process the consultants shall review USAID historical documents and summaries or other products (this may include those of USAID implementing partners.) As these may not be exhaustive, the team will be responsible for identifying and reviewing additional materials (academic, evaluations or assessments of other donors, etc) relevant to the evaluation.

Prior to arrival in the field, the consultant team will conduct a literature review to identify key documents describing methodologies for the development and implementation of HIV/AIDS high risk population surveillance systems. To explore supplements to the literature review and establish links with other regional resources, the consultant team is expected to conduct interviews with key experts. (See Appendix 2 for the complete list of experts).

Except for the interview to be scheduled at the WHO Knowledge Hub on Surveillance at the Andrija Stampar School of Public Health in Zagreb, Croatia, all interviews will be conducted via telephone.

Time will be allotted for team consultation and report writing.

### **Phase 2: Conducting Fieldwork/site visits in Central Asia (19 days/consultant)**

In a team meeting at the beginning of the fieldwork, the team and USAID/CAR will develop and agree to a workplan and implementation schedule. The team will conduct field work by traveling to the Central Asia Republics to meet with stakeholders, the Mission staff, CDC staff, Ministry officials and others involved. They will look at existing health and surveillance systems that are currently being used by the stakeholders and identify successful models for inclusion in the “how to” manual.

Site visits will begin with preliminary consultations in Almaty. The team will then travel to other major cities in the region, including Karaganda, Temirtau, Bishkek, Osh, and Tashkent to conduct interviews with other key stakeholders. These visits will be followed by a briefing of findings, including submission of a draft report and PowerPoint presentation, for USAID/E&E field managers and local CDC staff.

Site visits will include:

- Almaty, Kazakhstan: 4 days. Meet with USAID office staff, CDC, MOH, AIDS Center Director, reference lab, UNAIDS, WHO, implementation team of the Global Fund grant, and orientation meetings with other partners as requested.



- Karaganda and Temirtau, Kazakhstan: 2 days. Meet with AIDS Center Director, Regional Director of Health, NGOs, including and other partners as requested.
- Bishkek, Kyrgyzstan: 2 days. Meet with USAID staff, DFID regional representative, MOH, reference lab, AIDS Center Director, implementation team of the Global Fund grant, NGOs including
- Osh, Kyrgyzstan: 2 days. Meet with MOH, Provincial (Oblast) AIDS Center, and two NGOs, including Padruga and Parents Against Drugs.
- Tashkent, Uzbekistan: 3 days. Meet with USAID staff, MOH, CDC, reference lab, AIDS center, implementation team of the Global Fund grant and World Vision/JICA.
- Almaty, Kazakhstan 4 days, complete preliminary report and brief USAID and CDC staff

Time will be allotted for team consultation and report writing.

### **Phase 3: Preparation of Assessment Report, PowerPoint Presentation and Field Guide**

The final phase of this evaluation will be for the team to carry out data analysis and prepare the Assessment Report, PowerPoint presentation and Field Guide. These drafts will be submitted to the USAID E&E Bureau for review. In the final versions of the Assessment Report, PowerPoint Presentation and Field Guide, the Team Leader will incorporate comments and suggestions provided by the E&E Bureau.

### **Phase 4: Presentation of Report, Findings and Field Guide in Washington D.C. (2 days)**

Members of the consultant team will be asked to present findings in Washington to E&E senior management staff and other interested Global Health persons.

## **VI. TEAM COMPOSITION AND DESIRED QUALIFICATIONS**

The team will consist of three consultants with experience in Europe and Eurasia region, technical experience in evaluation of surveillance systems, and prior work experience in HIV/AIDS programming in developing countries. All team members should have knowledge of the PLACE methodology. Requirements for the team composition are:

1. A Team Leader with extensive experience in HIV/AIDS and health, preferably in the E&E region. He/She should be knowledgeable of HIV/AIDS program design, evaluation, and implementation within developing nations and surveillance systems. Excellent oral and written skills are required. The Team Leader will be responsible for completion of the final Assessment Report, Field Guide and PowerPoint presentation.
2. A Senior Consultant with extensive experience in surveillance methodology and HIV/AIDS surveillance program design, implementation, monitoring and assessment. Prior work experience with high risk groups in the E&E region is preferred, and excellent oral and written skills are required.
3. A Regional Advisor with extensive experience in working with HIV/AIDS surveillance systems in the E&E region is required and preferably within the CAR. Excellent oral and written skills are required.

The consultants will:

- Conduct a literature review of surveillance methodologies and assessment tools for the size of the at-risk population; discuss with key informants the strengths and weaknesses of current approaches for estimating and tracking E&E's concentrated and relatively low level epidemic.
- Through field visits to Central Asia, assess current surveillance systems/activities and identify best practices, lessons learned, challenges and cost-benefits.
- Make recommendations to field managers, USAID/W and other donors about critical gaps and priority investments that need to be made to improve the knowledge base on HIV/AIDS levels, trends and program priorities in the region.
- Write a practical Field Guide or "how to" manual for field managers which includes not only recommendations on sound methodological approaches but also guidance on key partners, technical assistance and training resources and resource requirements.

## **VII. REPORTING REQUIREMENTS**

The reports and presentations shall be done using Microsoft products (MSWord and PowerPoint), and the final versions shall be processed through Synergy's technical review process. Final products shall be edited, copied, and submitted to USAID/Washington E&E by Synergy as outlined in Section IV, Deliverables. The specific reports requirements for this assignment are:

1) The Assessment Report, of 20-30 pages, shall include:

- An executive summary of key findings and recommendations;
- Annexes to include the list of key documents resulting from the literature review, list of agencies and persons interviewed, list of site visits, list of resources, bibliography, etc.

USAID/W E&E will provide written comments on the draft Assessment Report within 14 days. The Team Leader, in consultation with the other team members, will then revise the draft report reflecting USAID's comments/suggestions within 7 days of receipt of these written comments. Following acceptance of the report by USAID the contractor will then provide USAID with 20 bound copies of the final Assessment Report.

The Team Leader shall submit to Synergy one electronic mail copy, one diskette copy, and one hard copy, in MS Word Format of the final version of the Assessment Report. In consultation with the Team Leader, the Synergy Project will edit and technically review this document prior to submission to USAID.

2) The Final PowerPoint Presentation, will be 45 minutes to one hour in length and include 30 to 35 slides.

USAID will provide written comments on the draft PowerPoint presentation within 14 days. The Team Leader, in consultation with the other team members, will then revise the draft report reflecting USAID's comments/suggestions within 7 days of receipt of these written comments. Following acceptance of the report by USAID the contractor will then provide USAID with one electronic mail copy and one diskette of the PowerPoint presentation.

The Team Leader shall submit one electronic mail copy and one diskette copy in MS PowerPoint format of the final version of the PowerPoint presentation to The Synergy Project for editing and technical review.

The Synergy Project shall submit to USAID/Washington E&E Region one electronic mail copy and one diskette copy of the PowerPoint presentation.

3) The Final Practical Field Guidelines Report of 4-6 pages, shall include:

USAID/W E&E will provide written comments on the draft Practical Field Guidelines Report within 14 days. The Team Leader, in consultation with the other team members, will then revise the draft report reflecting USAID's comments/suggestions within 7 days of receipt of these written comments. Following acceptance of the report by USAID the contractor will then provide USAID with 50 copies of the final Practical Field Guidelines Report.

The Team Leader shall submit to Synergy one electronic mail copy, one diskette copy, and one hard copy, in MS Word Format of the final version of the Practical Field Guidelines Report. In consultation with the Team Leader, the Synergy Project will edit and technically review this document prior to submission to USAID.

## **VIII. RELATIONSHIPS AND RESPONSIBILITIES**

1) USAID/Washington E&E will:

- approve SOW and budget
- assist with collection of documents for literature review
- provide comments on draft versions of the Assessment Report, PowerPoint Presentation and Field Guide within 14 days of submission for incorporation by the Team Leader into the final versions.
- approve final versions of the Assessment Report, PowerPoint presentation, and Field Guide.

2) USAID/CAR will:

- provide overall technical guidance for this activity
- approve team workplan and schedule of activities
- assist with collection of documents for literature review
- provide comments on draft versions of the Assessment Report, PowerPoint Presentation and Field Guide within 14 days of submission for incorporation by the Team Leader into the final versions.

3) AED/CAR will be responsible for providing in-country logistics to include arranging meetings, translation, local transport, transport to and at site visits, obtaining necessary visas and lodging for the consultant team.

4) The Team Leader will be responsible for the overall organization of the work; conducting in-country briefings; and fostering cohesive and productive working relationships among team members. The Team Leader will consult with the client USAID/E&E, and USAID/CAR as directed, throughout the assignment to ensure progress is sound and the key scope of work issues are being addressed. The Team Leader will facilitate the preparation of the Assessment Report, PowerPoint

Presentation and Field Guide among the team members; assure that the draft and final products are prepared in accordance with the Scope of Work; and that the required revisions for the three final deliverables are incorporated. Should changes to the Scope of Work be necessary, the Team Leader has authority to negotiate such changes with USAID/E&E and shall officially inform the Synergy Project, in writing, of said changes. The Team Leader will manage local expenditures.

5) All Team Members will:

- participate in the team planning meeting
- participate in any briefings as requested by the Team Leader
- be available for consultation during revision of the Assessment Report, PowerPoint Presentation and Field Guide as requested by the Team Leader
- facilitate the preparation of all deliverables
- maintain records and notes of all interviews and meetings
- submit to The Synergy Project consultant trip reports

6) The Synergy Project will provide the consultant team to USAID/E&E. The Senior PM&E Specialist will provide technical guidance to the consultant team, as needed, and review the Assessment Report, PowerPoint Presentation and Field Guide prior to submission to USAID/E&E. A Senior Technical Specialist will review and provide editing services for the Assessment Report, PowerPoint Presentation and Field Guide to finalize all deliverables prior to submission to USAID/E&E. A Program Manager will manage and support this activity throughout the assignment and a Program Associate will provide additional administrative support.

<i>Who</i>	<i>Position Title</i>	<i>Telephone Number)</i>	<i>Email</i>
<b>USAID/W E&amp;E</b>			
USAID/W Dr. Stephen Lee	Infectious Disease Advisor	202-712-0588	<a href="mailto:stlee@usaid.gov">stlee@usaid.gov</a>
USAID/W Dr. Katherine Kripke	Regional Advisor for E&E, OHA, Bureau for Global Health	202-712-1452	<a href="mailto:kkripke@usaid.gov">kkripke@usaid.gov</a>
<b>Field Contacts</b>			
Almaz Sharman	USAID/CAR Regional Advisor		<a href="mailto:asharman@usaid.gov">asharman@usaid.gov</a>
Kerry Pelzman	HIV/AIDS Regional Advisor for USAID/CAR		<a href="mailto:kpelzman@usaid.gov">kpelzman@usaid.gov</a>
Michael Favorov	Director of CDC/CAR		<a href="mailto:mfavorov@usaid.gov">mfavorov@usaid.gov</a>

Maureen Sinclair	CDC/CAR Deputy Director		msinclair@usaid.gov
<i>Logistical Support</i>			
Larry Held	AED Chief of Party	(3272) 50 39 22/23, 53 40 58	<a href="mailto:lheld@aedcar.org">lheld@aedcar.org</a>
AED Address	14 Chaikina Str. Office of AED  Almaty, Kazakhstan 480020		Office email: <a href="mailto:aed-car@aedcar.org">aed-car@aedcar.org</a>
Vladimir Zemskov	CDC COP, Training/Business Development Specialist		<a href="mailto:vzemskov@aedcar.org">vzemskov@aedcar.org</a>
<i>The Synergy Project</i>			
Charles Katende	Senior M&E Technical Specialist	202-842-2939, x. 139	<a href="mailto:ckatende@s-3.com">ckatende@s-3.com</a>
Jaya Chimnani	Program Manager	x. 193	<a href="mailto:jchimnani@s-3.com">jchimnani@s-3.com</a>
Susan Duberstein	Program Associate	x. 142	<a href="mailto:sduberstein@s-3.com">sduberstein@s-3.com</a>

## IX. LOGISTICS

The Synergy Project will provide the following technical and logistic support:

- assist in pre fieldwork collection of documents for literature review
- identify and recruit team members, and manage and support the team while on assignment
- provide administrative support for arranging all consultant travel, visas, DBA, Medex, and related preparations for consultant departure
- provide an advance to the team leader prior to departure to manage local expenses
- provide support and editing services for the preparation and production of the final version of the deliverables.

AED/CAR will provide in-country logistical support to include:

- arranging meetings, lodging, local transportation, translation services, and visa support

## X. PERIOD OF PERFORMANCE

The estimated level of effort for the consultants is not to exceed 108 days (47 days for the Team Leader, 42 days for the Senior Consultant, and 19 days for the Regional Advisor). The assignment will commence by September 20, 2004 and will end by February 28, 2005. All team members are required to spend at least 2 weeks in-country meeting with the stakeholders, conducting site visits and assessments of the existing surveillance systems to effectively capture the lessons learned and best practices within the region. The consultants are allowed a six-day work-week when working outside the United States.

Task	Duration	Due Date	Team Leader	Senior Consultant	Regional Advisor
<b>I. ASSIGNMENT START-UP</b>					
I.1 Document Collection		9/20	Synergy and USAID		
I.2 Literature Review					
I.2.1 Review Documents			5	5	
I.2.2 Key Expert Interviews	2 weeks	9/20 to 9/30	2	2	
I.2.3 Prepare Preliminary Fieldwork Report	2 weeks				
I.2.4 Submit Preliminary Fieldwork Report		10/11	2	2	
<b>I.3 Logistical preparations</b>					
I.3.1 Coordination with USAID and AED/CAR			Synergy		
Preparation of flight itineraries, visas, hotel accommodations, etc.			Synergy		
Preparation of fieldwork logistics (meetings, translation, and in-country transport and hotel accommodations)			AED		
<b>TOTAL DURATION (days)</b>			<b>9</b>	<b>9</b>	
<b>2. FIELDWORK</b>					
Travel To Almaty, Kazakhstan		Arrive 10/10	1	1	
2.1 Preliminary Fieldwork (Almaty)					

Task	Duration	Due Date	Team Leader	Senior Consultant	Regional Advisor
2.1.1 Team Planning Meeting to report on findings of literature review, to review goals and objectives of assignment, and to review schedule of activities		TBD	1	1	1
2.1.2 Development of Interview Guides and Assessment Report Outline		TBD	2	2	2
<b>2.2 Field Interviews/Site Visits</b>					
2.2.1 Almaty, Kazakhstan  Meet with other USAID Staff, CDC, MOH, AIDS Center Director, Reference lab, UNAIDS, WHO, and DFID	3 days	TBD	3	3	3
2.2.2 Karaganda and Timertau, Kazakhstan  Meet with CDC, AIDS Center Director, Regional Health Director, and other partners	2 days	TBD	2	2	2
2.2.3 Bishkek, Kyrgyzstan  Meet with USAID Staff, CDC, MOH, reference lab, AIDS Center Director, DFID Regional Representative	2 days	TBD	2	2	2
2.2.4 Osh, Kyrgyzstan  Meet with MOH, Provincial AIDS Center, Padruga, and Parent's Against Drugs	2 days	TBD	2	2	2
2.2.5 Tashkent, Uzbekistan  Meet with USAID Staff, MOH, CDC, reference lab, AIDS Center, World Vision/JICA	3 days	TBD	3	3	3
<b>2.3 In-country report/presentation Preparation and Debriefing</b>					
2.3.1 Prepare preliminary drafts of Assessment Report and PowerPoint presentation	3 days	TBD	3	3	3
2.3.2 Brief USAID and CDC on preliminary findings prior to departure		Prior to Departure			

Task	Duration	Due Date	Team Leader	Senior Consultant	Regional Advisor
<b>TOTAL DURATION (days)</b>			19	19	18
<b>3. PREPARATION OF ASSESSMENT REPORT, POWERPOINT PRESENTATION AND FIELD GUIDE</b>					
<b>3.1 Assessment Report</b>					
3.1.1 Prepare Draft of Assessment Report			5	5	
3.1.2 Submit Draft to USAID/W E&E and USAID/CAR for comments/review		11/25			
3.1.3 Comments returned to Team	14 days after submission	12/09			
3.1.4 Incorporate comments	12/09-12/16		3	1	
3.1.5 Submit final version of Assessment Report to Synergy		12/17			
3.1.6 Submission of 20 bound copies of final Assessment Report to USAID/W E&E.		1/07	Synergy		
<b>3.2 Prepare PowerPoint Presentation</b>					
3.2.1 Prepare PowerPoint					
3.2.2 Submit Draft PowerPoint to USAID/W E&E and USAID/CAR for comments/review		11/25	2	1	
3.2.3 Comments returned to Team	14 days after submission	12/09			
3.2.4 Incorporate comments	12/9-12/16		2	1	
3.2.5 Submit Final version of Final PowerPoint Presentation to USAID/W E&E and Synergy		12/17			
3.2.6 Submit Final PowerPoint to USAID/W E&E.		1/07	Synergy		
<b>3.3 Preparation of Field Guide</b>					
3.3.1 Prepare Draft #1 of Field Guide			2	2	
3.3.2 Submit Draft #1 to USAID/W E&E and USAID/CAR for comments/review		11/25			



Task	Duration	Due Date	Team Leader	Senior Consultant	Regional Advisor
3.3.3 Comment Returned to Team	14 days after submission	12/09			
3.3.4 Incorporate comments	12/09-12/16		2	1	
3.3.5 Submit final version of Field Guide to Synergy		12/17			
3.3.6 Submission of 50 copies of final Field Guide to USAID/W E&E		1/07	Synergy		
<b>TOTAL DURATION (days)</b>			<b>16</b>	<b>11</b>	
<b>4. FINAL PRESENTATION</b>					
Travel to DC			1	1	
4.1 Present in Washington DC		TBD	2	2	
<b>TOTAL DURATION (days)</b>			<b>3</b>	<b>3</b>	<b>0</b>
<b>5. Assignment Closeout</b>					
5.1 USAID Approval of Deliverables and completion of Synergy Evaluation Form		3/7/04			
<b>TOTAL DURATION OF ASSIGNMENT</b>			<b>47</b>	<b>42</b>	<b>19</b>
<b>TOTAL DURATION OF ALL CONSULTANT DAYS</b>			<b>108</b>		

## XI. FUNDING

Funds will come from the Eastern Europe and Eurasia Bureau regional funds.



## **ANNEX 2. SCHEDULE OF INTERVIEWS**

### **11–13 October 2004: Almaty, Kazakhstan**

- 10.11.04      Irina Kisselgof and Gulnara Nokin—Global Fund Implementation Team  
                 Natalia Kovtunenکو and Valeriya Krukova—Reference Laboratory
- 10.12.04      Michael Favorov, Maureen Sinclair, Gulzhan Muratbayeva and Baurzhan Jussupov—  
                 CDC  
                 Angela Franklin Lord, Almaz Sharman and Khorian Izmailova—USAID
- 10.13.04      Sheila O'Dougherty—ZdravPlus  
                 Alexander Kossukhin—UNAIDS

### **14 October 2004: Karaganda, Kazakhstan**

- 10.14.04      Kuznetsov Nikolay Pavlovich and staff of AIDS Center  
                 Kanat Kartaevich Ermekbaev—Oblast Department of Health  
                 Andrei Schmidt—Gay and Lesbian Association

### **15 October 2004: Temirtau, Kazakhstan**

- 10.15.04      Nurali Amanzholov—Shapagat  
  
                 Visits to AIDS centre and satellite clinic at delivery hospital

### **18 October 2004: Almaty, Kazakhstan**

- 10.18.04      Gulzhan Alimbekova—Center for Study of Public Opinion  
                 Gulnara Ismankulova—WHO  
                 Almaz Sharman—USAID

### **20–21 October 2004: Osh, Kyrgyzstan**

- 10.20.04      Talai Abdyraimov, Guleina Normatova, Ruslan Abdivaliev, Nurgul Mamitominova,  
                 Marat Akhmatov, Klara Yldasheva, Dilshot Mavlemov—Padruga  
                 Jarkimbay Jusuev, Mamat Jemuratov, Ludmila Pak—Osh Oblast AIDS Center
- 10.21.04      Mamasabir Burkhanov—Parents Against Drugs/Oblast Narcology Center

### **22–25 October 2004: Bishkek, Kyrgyzstan**

- 10.22.04      Boris Shapiro, Ainagul Osmonova, Nina Golovtchenko, Aigul Ismailova—AIDS  
                 Center  
                 Vladimir Tupin—Oasis  
                 Gulnara Kurmanova, Kristina Mahnicheva, Shahnoz Islamova—Tais Plus

10.25.04      Batma Etsebesova—Socium  
Elmira Imambakieva—Population Services International  
Damira Bibosunova—USAID  
Boris Shapiro—Global Fund grant implementing team  
Tugelbay Mamaev—Osh AIDS Center  
Raushan Abdilaeva—Ministry of Justice

**26–29 October 2004: Tashkent, Uzbekistan**

10.26.04      Kevin Dean—USAID  
Mukhabat Abdurakhmanova—Republican AIDS Center Laboratory  
Guzel Giasova and Aysara Anarkulova—Republican AIDS Center  
10.27.04      Umid Sharapov—CDC  
Azat Ongorbaev—National Reference Laboratory, Institute of Infectious Diseases  
and Epidemiology  
Robert Gray, Artur Niyazov—Population Services International  
10.28.04      Oksana Abdulaeva and Alexei Polkovanov—FACT Social Research Agency  
Eiko Oka and Darren Thompson—World Vision International

**30 October–2 November 2004: Almaty, Kazakhstan**

10.30.04      Kerry Pelzman—USAID  
11.01.04      Chris Jones—PSI  
11.01.04      Feedback meeting with USAID and CDC

### ANNEX 3. PROGRESS IN IMPLEMENTING SENTINEL SURVEILLANCE IN UZBEKISTAN IN 2004 (TO DATE)

Population	Sample Size	Comments
Tashkent City		
IDUs	402	Data collection completed—analysis in progress
Sex workers	300	Data collection about to be completed
STI patients	400	About 60 samples collected to date.
Pregnant women and MSM	To be launched	
Tashkent Oblast		
IDUs	800	2 cities
Prisoners	275	In 1 prison of 500 people



## ANNEX 4. HIV PREVALENCE AMONG VULNERABLE POPULATIONS IN SENTINEL SITES IN KAZAKHSTAN IN 2003

Population	Site	Number Tested	No. HIV+	Percentage
MSM	Karaganda	100	0	0%
STI Patients	Karaganda	270	0	0%
	Pavlodar	461	3	0.7%
	Ural'sk	502	3	0.6%
	<b>Total</b>	<b>1233</b>	<b>6</b>	<b>0.5%</b>
Prisoners	Karaganda	500	1	0.1%
	Pavlodar	439	2	0.5%
	Ural'sk	200	0	0%
	Shymkent	399	4	1.0%
	<b>Total</b>	<b>1538</b>	<b>7</b>	<b>0.5%</b>
Sex Workers	Karaganda	150	9	6.0%
	Pavlodar	100	12	12.0%
	Ural'sk	64	1	1.6%
	Shymkent	221	3	1.4%
	<b>Total</b>	<b>535</b>	<b>25</b>	<b>4.7%</b>
IDUs	Karaganda	270	6	2.2%
	Pavlodar	250	15	6.0%
	Ural'sk	250	3	1.2%
	Shymkent	270	16	5.9%
	<b>Total</b>	<b>1040</b>	<b>40</b>	<b>3.8%</b>
Pregnant Women	Karaganda	470	0	0%
	Pavlodar	600	0	0%
	Ural'sk	500	0	0%
	Shymkent	600	1	0.2%
	<b>Total</b>	<b>2170</b>	<b>1</b>	<b>0.05%</b>





## ANNEX 5. HIV PREVALENCE AMONG VULNERABLE POPULATIONS IN SENTINEL SITES IN KYRGYZSTAN IN 2004

Location	Vulnerable Population	Sample Size	No. HIV+	No. HCV+	No. syph+
Osh	IDUs	250	29 (11.6%)	113 (45.2%)	19 (7.6%)
	Sex Workers	228	3 (1.5%)	6 (3.0%)	15 (7.5%)
	Pregnant Women	400	Data not available		
	STI patients	200	3 (1.5%)	1 (0.5%)	18 (9.0%)
Bishkek	IDUs	265	3 (1.3%)	160 (60.4%)	44 (16.6%)
	Sex Workers	150	3 (2%)	8 (5.3%)	64 (42.6%)
	Prisoners	450	12 (2.6%)	144 (32%)	89 (19.7%)



## ANNEX 6. DEMOGRAPHIC AND BEHAVIORAL TRENDS AMONG IDUs IN KYRGYZSTAN (SOCIU)

Demographic—reduced age including family drug use; increased number of women; lower education levels; increased number of unemployed; increased number of students

Behavior—shift from hashish to heroin; increased alcohol use; earlier onset of sexual activity; increased provision of sexual services to get drugs

Adverse events: reported increase of overdose

Summary of key behavioral changes from 1998 to 2003	1998	2003
Percentage of IDUs reporting sharing injecting equipment	68%	14%
Percentage of IDUs reporting multiple use of syringe	98%	30%
Percentage of IDUs reporting sharing of equipment to prepare drugs	70%	8%
Percentage of IDUs who perceive themselves at risk of HIV	32%	68%
Percentage of IDUs who report condom use at last sex	14%	46%
Percentage of IDUs who have knowledge of HIV	35%	73%



## ANNEX 7. SURVEILLANCE DATA FOR THREE CENTRAL ASIAN REPUBLICS IN 2003 UNAIDS UNGASS REPORT

Data in Consolidated Report (UNAIDS, 2003b)

	Kazakhstan	Kyrgyzstan	Uzbekistan
IDUs			
Estimated Number	250 000	N/A	N/A
Estimated HIV Prevalence	3.3%	N/A	N/A
Estimated Program Coverage	N/A	N/A	N/A
Sex Workers			
Estimated HIV Prevalence	N/A	N/A	N/A
Pregnant Women			
Estimated HIV Prevalence	0.3%	0%	N/A

### Data in Country Reports (Republic of Kazakhstan, 2003; Kyrgyz Republic, 2003; Republic of Uzbekistan, 2003)

Kazakhstan reported the following data in addition to those included in the consolidated report:

- 14.5% of IDUs practicing behaviors that reduce risk of HIV transmission
- HIV prevalence among sex workers—1%
- HIV prevalence among prisoners—0.3%
- HIV prevalence among pregnant women—0.1%

The report submitted by the Kyrgyz Republic available on the UNAIDS website is in Russian only. For Uzbekistan, the report is in a combination of Russian and English, but only seems to address policy issues.



## ANNEX 8. USE OF SURVEILLANCE DATA TO ASSESS IMPACT OF GLOBAL FUND PROGRAMS IN CENTRAL ASIA

### Kazakhstan

The Global Fund grant agreement does not refer to any biological or behavioral data within the chart of intended program results (GFATM, 2003a). The proposal (Kazakhstan CCM, 2002) presents prevalence indicators at the goal level (see table below), but also includes case-based data at this level. Behavioral indicators are included, but at the objective level. Examples include percentage of IDUs who consumed only sterile syringes, needles, and drug solutions during the last three months; percentage of sex workers who always used condoms with non-cohabitant partners during the last month; and percentage of MSM who always used condoms with non-cohabitant partners during the last month.

<b>Goal:</b>	<b>To reduce morbidity and mortality of HIV/AIDS</b>	
<b>Impact indicators</b> (Refer to Annex II)	<b>Baseline year</b>	<b>Target year</b> (last year of proposal)
Rate of increase in notification rates of new cases of AIDS	2001: 100% over previous year	2007: 0% (similar rate over previous year)
HIV prevalence among IDU	2002: 3.3%	2007: less than 10%
HIV prevalence among MSM	2002: Unknown	2007: less than 5%
HIV prevalence among CSW	2002: Unknown	2007: less than 5 %

### Kyrgyzstan

The Global Fund grant agreement does not refer to any biological or behavioral data within the chart of intended program results (GFATM, 2003b). The proposal (Kyrgyzstan CCM, 2002) fails to include either prevalence or behavioral indicators at the goal level. Rather, it includes a number of non-standard indicators including number of reported HIV cases and an estimate of AIDS morbidity. Objectives contain a number of behavioral indicators, including one indicator of knowledge about HIV among school youth—*Proportion of school youth in the age 14–20 who know not less than 2 methods of protection against HIV and STI*; an estimate of the percentage of the number of IDUs who participate in programs that “use” condoms; a combination of indicators of knowledge and behavior among sex workers—*Proportion of sex workers who reported the use of condom during the last sexual contact with a client and proportion of sex workers who know two methods of protection against HIV*; and indicators of knowledge and behavior among MSM—*Use of condoms by people covered by the programme and knowledge of not less than two methods of protection against HIV*.

## Uzbekistan

The Global Fund grant agreement does not refer to any biological or behavioral data within the chart of intended program results (GFATM, 2004). The proposal (Uzbekistan CCM, 2003) presents prevalence indicators at the goal level (see table below). A range of behavioral indicators are included at the objective level, including:

- Percentage of IDUs reporting sharing injecting equipment and solutions in the past 12 months
- Percentage of IDUs reporting that they always used condoms over a period of one year
- Number of sex workers who report consistent condom use over the past six months

<b>Goal:</b>	<b>To prevent HIV/AIDS spread into general population by reducing its impact on most vulnerable populations</b>	
<b>Impact indicators</b> (Refer to Annex II)	<b>Baseline year</b>	<b>Target year</b> (last year of proposal)
HIV prevalence among IDUs	No baseline data	<7%
HIV prevalence among sex workers		<5%
HIV prevalence among MSM		<5%
HIV prevalence among prisoners		<5%
HIV prevalence among pregnant women	<1%	<1%



## ANNEX 9. SUMMARY TABLE OF SURVEILLANCE ACTIVITIES IN THREE CENTRAL ASIAN COUNTRIES

Country	Description of Surveillance Activities	Date	Implementing Agency	Funding Agency	Comments
Kazakhstan	Case reporting	Ongoing	Government	Government	Reduced from 1 million per year to 800,000. Mandatory testing among prisoners, military, and for some foreign travel and employment. Routine testing in medical settings
	Sentinel surveillance	From 2002, ongoing	Government—initially with UNAIDS support, now CDC	USAID	Since 2003, CDC has been supporting work in four pilot sites among six vulnerable subpopulations—sex workers, IDUs, prisoners, MSM, pregnant women, and people with STIs. Government extended to 10 sites in 2004 and plans to extend to all oblasts in 2005
	One-time study of IDUs in Temirtau and Karaganda	2002	CDC	USAID	Large comparative study of IDUs in two cities within close proximity but with very different HIV prevalence rates among IDUs
	Various behavioral studies among MSM	2003/4	Various, including NGOs	Not known	
	Survey of sexual behavior of young people	2004	CIOM	Global Fund	
	Survey of attitudes toward PLWHA and members of vulnerable populations	2004	CIOM	Global Fund	
	PLACE studies	2002/3	MEASURE Evaluation	USAID	
	Estimates of population sizes	1998–2003	Not known	UNAIDS	

Country	Description of Surveillance Activities	Date	Implementing Agency	Funding Agency	Comments
Kyrgyzstan	Case reporting	Ongoing	Government	Government	Reduced test from 1 million per year to 130,000
	Sentinel Surveillance	From 2004, ongoing	Government—with CDC support	USAID	Since 2004, this work has been conducted in Osh (among sex workers, IDUs, pregnant women, and people with STIs) and Bishkek (among IDUs, sex workers and prisoners).
	Surveillance among vulnerable groups (e.g., MSM)	2003	Not known	WHO	Conducted in other areas (e.g., Chui oblast)
	Rapid Assessment	1998	Not known	UNAIDS	Conducted in Osh and Bishkek among IDUs (behavioral only)
	Surveys of numbers of IDUs	1998 and 2002	Socium	UNDP	
	Countrywide survey of IDUs	2002	Not known	UNODC	Included blood testing for HIV, hepatitis C, and syphilis
	Studies of hepatitis	2002–04	National Reference Laboratory	Not known	
	Surveys of numbers of sex workers	Twice per year	Tais Plus	Not known	Bishkek only
	Behavioral study among students	2004	PSI	Not known	
	PLACE studies	2002/03	MEASURE Evaluation	USAID	

Country	Description of Surveillance Activities	Date	Implementing Agency	Funding Agency	Comments
Uzbekistan	Case reporting	Ongoing	Government	Government	Number of tests not disclosed; reports of widespread mandatory testing
	Sentinel Surveillance	From 2004, ongoing	Government—with CDC support	USAID	This work has been carried out among six vulnerable populations in Tashkent city and oblast (see Annex 3 for details)
	One-time study of IDUs in Yangiul and Chirchik	2004	CDC	USAID	Large comparative study of IDUs in two cities within close proximity but with very different HIV prevalence rates among IDUs
	Behavioral survey of IDUs	2002	Republican AIDS Center, UNAIDS, Soros Foundation	Not known	Tashkent only
	HIV/AIDS situational analysis	Not known	Not known	UNAIDS	
	Needs analyses conducted by NGOs	Not known	Various NGOs	Not known	
	Rapid assessment	2000	Not known	UNAIDS	4 cities
	Study of IDUs	2002/3	National Center of Control of Drug Use	UNAIDS/UNODC	
	Prison survey	Not known	NGO	Not known	
	Regional survey of high-risk youth	2004	PSI	Not known	4 countries
	Survey of school youth	2004	World Vision	Not known	
	PLACE studies	2002/3	MEASURE Evaluation	USAID	